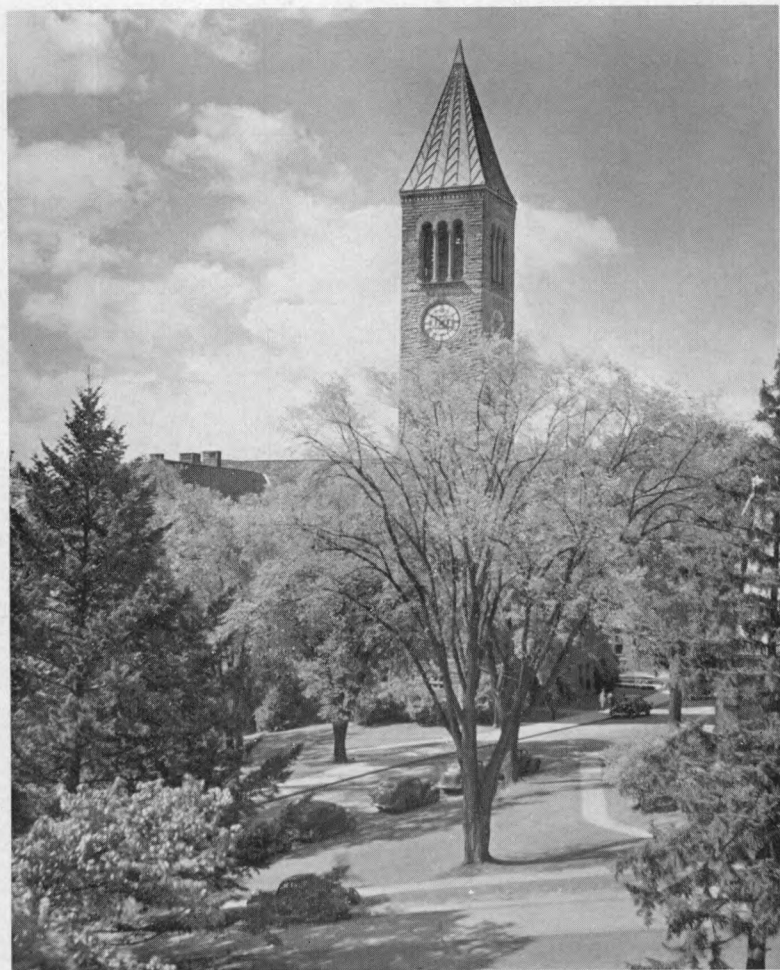


*Announcement of the*

# CORNELL UNIVERSITY SUMMER SESSION: 1941

UNIVERSITY AND STATE SUMMER SCHOOLS



CORNELL UNIVERSITY OFFICIAL PUBLICATION  
VOLUME 32 : MARCH 1, 1941 : NUMBER 14



*To the southwest, the campus looks out over the War Memorial,  
one of the residential halls for men, to the Inlet Valley and  
Connecticut Hill.*

# CORNELL UNIVERSITY OFFICIAL PUBLICATION

VOL. 32

NUMBER 14

*Announcement of the*  
**SUMMER SESSION**  
**UNIVERSITY AND STATE**  
**SUMMER SCHOOLS**



JULY 7—AUGUST 15

1941

ITHACA, NEW YORK

PUBLISHED BY THE UNIVERSITY

MARCH 1, 1941

## CALENDAR

- JULY 7, MONDAY Registration, 8:30 a.m.-12:30 p.m., 1:30 p.m.-5 p.m., Barton Hall. Fees are due for payment at the Treasurer's office, Morrill Hall.
- JULY 8, TUESDAY Instruction begins at time and place announced for each course. Registration is continued at the Registrar's office, Morrill Hall.
- JULY 11, FRIDAY Last day for payment of fees at the Treasurer's office, which closes at 4 p.m., Morrill Hall.
- JULY 12, SATURDAY Instruction continues on this Saturday.
- AUG. 14, THURSDAY Final examinations begin; schedule on page 66.
- AUG. 15, FRIDAY Summer Session ends, 4 p.m.

## SPECIAL COURSES

- JUNE 16, MONDAY Summer Field Course in Geology begins, Spruce Creek, Pennsylvania.
- JUNE 23, MONDAY First unit courses in Hotel Administration begin, 9 a.m., Martha Van Rensselaer Hall.

## WEEKLY CALENDAR

A weekly calendar is issued and posted on each Saturday of the Summer Session. This carries all official notices and gives details of all public events, such as concerts, lectures, excursions, etc. Copies may be obtained upon request at the desk of Willard Straight Hall, at the Summer Session office, and at other University offices.

## SUMMER SESSION OFFICE

During July and August the Summer Session office is located in Room 245 Goldwin Smith Hall. The office will be open from 8 a.m. to 4 p.m., daily except Saturday; on Saturday the office will close at 12 noon. During the rest of the year the Summer Session office is located in Room 249 Plant Science Building.

## CORNELL UNIVERSITY OFFICIAL PUBLICATION

PUBLISHED BY CORNELL UNIVERSITY AT ITHACA, N. Y.

Monthly in September, October, and November  
Semi-monthly, December to August inclusive

[Entered as second-class matter, December 14, 1916, at the post office at Ithaca, New York, under the act of August 24, 1912.]



THE SUMMER SESSION of Cornell University carries on the work of the several Schools and Colleges during the summer vacation period. By attendance at the Summer Session, teachers, principals and superintendents in public and private schools may continue their professional training; professors and instructors in colleges and teachers in secondary schools may carry on specialized work in their particular fields; graduate and undergraduate students, enrolled in the regular sessions, may continue their work during the vacation period; and other persons who wish to further their education by study during the summer months are offered an excellent opportunity.

In the Summer Session of 1940 more than 750 teachers in public and private secondary schools were in attendance, together with 125 members of the faculties of colleges and universities. Of the 2021 students who registered in the Session of 1940, more than half held one or more college degrees; but 680 undergraduates in the colleges of Cornell University and in other institutions were in attendance to earn credit toward their Bachelor's degrees. The student body included representatives from 43 states and the District of Columbia, from Puerto Rico, Philippine Islands, and Canada, and from 9 other countries.

## ADMISSION

Application for admission to the Summer Session of 1941 should be made on the special form printed on the last pages of this Announcement. In most cases the information called for on this form will be sufficient. However, undergraduates registered in institutions other than Cornell University will be required to submit certificates of good standing and transcripts of their records before they are admitted, and other applicants may be asked to furnish additional information. **Applications should be filed before July 1**, and late applicants who are admitted may unavoidably be delayed in registration. **A certificate of admission signed by the Director is a prerequisite for registration in the Summer Session.**

The work of the Summer Session is planned to put the facilities of the University at the disposal of those persons who can use them to good advantage and for serious purposes during the summer period. Admission, however, cannot be granted to persons inadequately trained for the work they propose, or whose records in Cornell University or elsewhere are unsatisfactory; neither will admission be granted to persons whose purposes seem inadequate or inappropriate or better served by other work or work at other institutions. All applications will be promptly acted upon, but early application is urged.

## ADMISSION TO THE

GRADUATE SCHOOL A student planning to become a candidate for an advanced degree from Cornell University must also apply for admission to the Graduate School. For this, two requirements are made: (1) the applicant must have received a baccalaureate degree from a college or university of recognized standing, or must have done work equivalent to that required for such a degree; (2) as judged by his scholastic

record, or otherwise, the applicant must show promise of ability to pursue advanced study and research.

**A student who wishes to enter the Graduate School should file application for admission, together with all the required supporting credentials, in the Office of the Dean of the Graduate School by June 1 if possible.** Application must be made on the formal blanks obtainable from the office of the Graduate School, and must be accompanied by complete and official transcripts of the student's previous training.

Because of the time required to secure and evaluate transcripts and other records, a period of two to four weeks usually elapses between the receipt of an application and formal action upon it. Every effort will be made to render decisions promptly, and applicants can assist materially by making early applications.

Students planning to apply for admission to the Graduate School should read the section on the Graduate School beginning on page 7. Further information is given in the Announcement of the Graduate School, which will be sent by the Secretary of the University upon request.

## REGISTRATION

**Registration for the Session of 1941 will take place on Monday, July 7, in Barton Hall; the hours for registration will be from 8:30 a.m. to 12:30 p.m. and from 1:30 p.m. to 5 p.m. Students are urged to register on this day. Advance registration, either in person or by mail, cannot be arranged.**

Registration is required for admission to any of the exercises of the Summer Session. In addition, all women students must register with the Dean of Women. Registration of automobiles to be driven in and about Ithaca by Summer Session students is also required.

## REGISTRATION IN THE

**GRADUATE SCHOOL** Students who wish to obtain credit toward the advanced degrees of Cornell University for Summer Session work should arrange for admission to the Graduate School by correspondence in advance. They will then, on registration day, register in the Graduate School. Students whose applications and credentials for admission to the Graduate School are received after June 15 will not be able to register in the Graduate School on registration day, July 7. They will register in the Summer Session on that day and, after consulting members of the faculty in their proposed fields of graduate study, begin at once their programs of work. They will register in the Graduate School in Morrill Hall immediately after receiving notice of favorable action on their applications.

## GRADUATES NOT REGISTERING

**IN THE GRADUATE SCHOOL** Students registered in the Graduate Schools of other institutions and planning to obtain credit toward the advanced degrees from those institutions by their Summer Session work do not register in the Graduate School. Before registering in the Summer Session they should arrange for the crediting of their Summer Session work by the institutions from which they plan to

take the degrees. Other students who hold bachelor's degrees but are not candidates for advanced degrees also register in the Summer Session only.

#### SCHEDULES

Except by permission of the Director, all students are required to register for courses amounting to four credit hours as a minimum schedule. The normal schedule is six credit hours and students are advised against registering for more.

#### REGISTRATION

**FOR ATTENDANCE** Under certain circumstances teachers and other mature students, not candidates for degrees, may receive permission to register for some or all of their courses for attendance only. Students so registered are required to attend regularly and to perform the class work of the courses, but they will not be permitted to take the final examinations. They will receive no credit for these courses but may secure certificates of attendance in courses so registered for. Registration for attendance cannot be changed to registration for credit after the second week of the Session.

#### LATE

**REGISTRATION** Students reaching Ithaca on July 8 or later will register at the following times and places: all students, with the Registrar, at his office in *Morrill Hall*, between 9 a.m. and 4 p.m.; graduate students, also with the Dean of the Graduate School at his office in *Morrill Hall*, at the same hours; all women students, also with the Dean of Women, at 1 *Sage Avenue*, between 9 a.m. and 4 p.m.; owners and drivers of automobiles, also with the Campus Patrol Office, between 8:30 a.m. and 4:30 p.m. Graduate students who expect to receive residence credit toward an advanced degree for Summer Session work should register with the Dean of the Graduate School within the first week of the Session.

#### CHANGES OF

**REGISTRATION** All changes of registration after Monday, July 7, must be made in the Summer Session office, 245 Goldwin Smith Hall. Except by permission of the Director, no changes of registration may be made after Friday, July 11.

#### AUDITORS

Admission to classrooms during the Summer Session is restricted to students registered for the Session. A student thus duly registered may occasionally visit any class; but if he wishes to attend regularly at classes for which he is not registered, he must secure an auditor's permit. Such permits will be granted whenever the student can show a serious purpose in such attendance. Auditors are not required to take part in the work of the courses which they visit, and certificates of attendance cannot be issued to them.

Auditor's permits cannot be issued on registration day; they may be secured on Tuesday, July 8, and later, at the Summer Session office.

### WITHDRAWAL FROM THE SUMMER SESSION

A student may arrange for withdrawal at any time by cancelling his registration at the Summer Session office, 245 Goldwin Smith Hall. In such cases, the Treasurer may refund a part of the tuition fee or cancel a part of the obligation that the student has incurred for tuition, provided the reason for the withdrawal is stated in writing and is satisfactory to the Treasurer and the Registrar. In such cases the student is required to pay twenty per cent of the term's tuition for each week or fraction of a week between the first registration day and the date of his certificate of withdrawal, **unless the withdrawal is made before noon on Thursday, July 10.**

### CERTIFICATES FOR WORK DONE

Students in the Summer Session may receive certificates of attendance and of work performed, with grades. Application for them should be made before August 12, and the applicant must leave at the office of the Registrar a large-sized envelope stamped and directed to his home address. The certificate will then be forwarded by mail.

### ACADEMIC

**CREDIT** All courses offered in the Summer Session, excepting some of the unit courses of one or two weeks in length, are accepted for credit in one or more of the Schools and Colleges of the University, when taken by matriculated students in those Schools and Colleges. No student may receive credit for more than eight semester hours for work done in a single Summer Session.

### COLLEGE OF ARTS

**AND SCIENCES** To obtain credit towards the Bachelor of Arts degree for work done in a Cornell Summer Session, a student must previously have filed with the University Director of Admissions credentials covering the entrance requirements of the College of Arts and Sciences. He should then, in advance of Summer Session registration, secure the Dean's approval of his selection of courses. For work completed in a single Summer Session credit of not less than four nor more than eight hours will be allowed, but a total of not more than thirty hours of credit may be allowed towards the degree for all Summer Session work whether done at Cornell or elsewhere. The academic requirements for the degree of Bachelor of Arts are explained in detail in the Announcement of the College of Arts and Sciences.

The Summer Session records of students registered in the College of Arts and Sciences are reviewed by the usual standing committees of the College, and poor records in the Summer Session are liable to the same penalties as in the regular University session.

### COLLEGE OF ENGINEERING

Students in the College of Engineering who desire to offer work done in the Summer Session toward requirements for graduation should consult the Director of the School in which they are regularly registered before registering in the Summer Session. Students

not yet matriculated in the College of Engineering, but planning to enter it, may obtain information about its requirements by applying to the Secretary of the College of Engineering.

#### STATE COLLEGES OF

AGRICULTURE AND HOME ECONOMICS Students in the State Colleges of Agriculture and Home Economics must consult with an adviser and secure his approval to the proposed schedule of courses if credit in those Colleges is to be secured. Advisers will be in Barton Hall on registration day, July 7, and may be consulted at their offices on July 8 or later.

#### DEPARTMENT OF

HOTEL ADMINISTRATION Students in the Department of Hotel Administration who desire to offer work done in the Summer Session towards requirements for graduation should consult Professor Meek of that department before registering in the Summer Session.

#### INSTITUTIONS OTHER THAN

CORNELL UNIVERSITY The foregoing regulations apply to undergraduate students matriculated at Cornell University. Undergraduates enrolled in other institutions and wishing to have credits earned in the Summer Session applied on their work at such other institutions should, before coming to Ithaca, consult their own college authorities and make all arrangements by them deemed necessary. The Cornell Summer Session can assume no responsibility for the use to be made of credits earned by students thus coming from other places of study. The certificates mentioned above will show what courses have been taken, the amount of credit in terms of Cornell "hours," and the grades.

### THE GRADUATE SCHOOL

APPLICATION FOR ADMISSION A student planning to apply for admission to the Graduate School should write at once to the Dean of the Graduate School for a copy of the Announcement of that School and for the blanks required for applications for admission. The Announcement gives full information about the advanced degrees granted by Cornell University, including the language requirements for admission and for some of the advanced degrees; residence and course requirements; and other information not given in the following sections.

Applications for admission to the Graduate School should be filed by June 1 if possible. After admission to candidacy for a degree, the student may write in advance of the opening of the Summer Session to professors whose courses he plans to take. In this way it is possible to secure advice with regard to major and minor subjects, or fields of concentration, and information about course requirements in specific fields, and to avoid delay and interruption of work at the opening of the Session.

#### REQUIREMENTS FOR

MASTER'S DEGREES The requirements for the degrees Master of Arts, Master of Science, and Master of Science in Agriculture consist of three parts: (1) a minimum period of residence; (2)



completion of such courses and other work (under Plan A, including a thesis) as may be specified by a special committee selected by the student to direct his work; (3) competence in scholarship, tested by a final examination.

#### RESIDENCE

**REQUIREMENTS** The minimum residence requirement for the Master's degrees mentioned above is two semesters of residence at Cornell University. This minimum requirement may be satisfied by five Summer Sessions of six weeks, or one semester and three Summer Sessions of six weeks, at Cornell University. Candidates for these degrees who are in residence during Summer Sessions are also expected to continue their studies during the year under the direction of the chairman of the special committee in charge of their work.

#### SUBJECT MATTER

**REQUIREMENTS** The subject matter requirements for the Master's degrees mentioned above may be satisfied in two ways. Each student, when applying for admission to candidacy for a Master's degree, should indicate which of these two plans of work he wishes to follow:

#### PLAN A

The candidate selecting this plan chooses a major subject of rather limited scope (e.g., French Literature, American History, Botany, Physical Chemistry) to which he plans to devote the greater part of his time. He also selects a minor subject properly related to the major subject. He then selects from the faculty of the Graduate School a member to represent each of his subjects; these constitute his special committee, and the representative of the major subject acts as chairman. The candidate then files with the Dean of the Graduate School a statement of his major and minor subjects approved by the members of his special committee. This statement must be filed within one week after registration.

The candidate then and from time to time thereafter confers with the members of his special committee, and with their help outlines a program of work which meets the requirements for the degree he expects to earn. These requirements will include achievement in independent investigation supported by a thesis acceptable to the student's special committee. In addition to course examinations, the candidate is required to pass a final examination comprehending the thesis and the major and minor subjects.

#### PLAN B

The candidate selecting this plan chooses a field of concentration of broader scope (e.g., Biological Sciences, Social Studies, English, Foreign Languages, Home Economics), to which he plans to devote at least half of his time. He also selects a group of subjects within which he plans to distribute the remainder of his work. He then selects two members of the faculty to serve as his special committee. One of these, who is chairman of the committee, represents the field of concentration; the other may be chosen from either that field or some related field, depending on the candidate's program. The candidate then files with the Dean of the Graduate



School a statement of his field of concentration approved by the members of his special committee. This statement must be filed within one week after registration. The candidate then and from time to time thereafter confers with his special committee, and with their help outlines a program of work which meets the requirements for the degree he expects to earn.

The subject matter requirements under this plan include the satisfactory completion of approved studies carrying a minimum of thirty semester hours of credit, of which approximately one half will be in the field of concentration and the rest will be variously distributed with the sanction of his special committee. Work acceptable within the field of concentration must be devoted in substantial part to studies requiring original investigation, organization and criticism on the part of the student. The candidate is not required to present a formal thesis; but if he does not do so, he is required to complete an expository or critical essay, or a problem in research, to the satisfaction of his special committee. In addition to course examinations, the candidate is required to pass a final examination comprehending the field of concentration and the distributed studies.

#### REQUIREMENTS FOR THE DOCTOR'S DEGREE

The requirements for the Doctor's degree include a reading knowledge of French and German, tested by a special examination. A major subject and two minor subjects are chosen, and a thesis is always required. The residence requirement for the Doctor's degree may, upon recommendation of the student's special committee, be fulfilled in part by attendance during the Summer Session. For this purpose, three Summer Sessions will be regarded as the equivalent of one semester, and five Summer Sessions as the equivalent of one year. However, no more than three semesters of residence credit toward the Doctor's degree may be earned by Summer Session work at Cornell or elsewhere. The last year of required residence must ordinarily be spent in study during the regular sessions at Cornell University.

Candidates for the Doctor's degree should in all cases consult the Announcement of the Graduate School for a more complete statement of the requirements.

#### COMPLETION OF REQUIREMENTS

Candidates for advanced degrees who expect to complete requirements and to take their final examinations at the end of the Summer Session should call at the office of the Graduate School well in advance for the necessary instructions and blanks.

#### REGISTRATION FOR RESIDENCE CREDIT

To obtain residence credit in the Graduate School for Summer Session work the student must register both in the Summer Session and in the Graduate School; and such registration should be completed within the first week of the Session.

#### CANDIDATES IN THE SCHOOL OF EDUCATION

The School of Education in its administration of graduate work functions as a division of the Graduate School of the University with the same requirements for admis-

sion save as to foreign languages. Two professional degrees are offered. (1) The Master of Education (M.Ed.) degree is intended primarily for those who complete, through a newly-established five-year program, the pre-service requirements for admission to teaching. (2) The Master of Science in Education (M.S. in Ed.) degree is intended primarily for those who already hold certificates to teach but who wish to prepare themselves for some specialized form of educational service, such as administration, supervision, or guidance. In general, the program does not demand the extensive research required of a candidate under Plan A of the regular Master's degree and permits a broader selection of courses. For further information regarding the requirements for these degrees, address the Director of the School of Education, Stone Hall, Cornell University, Ithaca, N. Y.

#### NON-CANDIDATES

A student admitted to the Graduate School as a non-candidate selects an adviser to direct his work. He then files with the Dean of the Graduate School not later than one week after registration a statement, approved by his adviser, of the studies he plans to pursue.

#### RESIDENT DOCTORS

Persons who hold a Doctor's degree or have equivalent standing may, subject to permission from the Dean of the Graduate School, register as resident doctors to carry on advanced work in their special fields of study. Upon recommendation of the Dean of the Graduate School resident doctors are exempt from the payment of tuition and all other fees except laboratory fees. With the exception of advanced courses closely related to their fields of work, resident doctors may not attend courses without the payment of tuition.

#### FEES

All fees are due and payable at the Treasurer's office in Morrill Hall on registration day, July 7. The last day for payment of fees without penalty is Friday, July 11.

#### TUITION FEES

The tuition fee for the Summer Session is \$60. Students taking unit courses for less than six weeks will pay tuition at the rate of \$12 a week. If unit courses extending through six weeks are taken, the tuition fee will be \$60.

#### MATRICULATION FEE

A matriculation fee of \$10 and an examination book fee of \$1 are charged if the student is registering for the first time in the Graduate School of Cornell University, unless the student, as an undergraduate in Cornell University, has already paid these fees. A student registering in the Summer Session but not in the Graduate School does not pay these fees unless he is at the same time registering for the first time as a candidate for a degree from one of the other Schools or Colleges of the University. For further information about these fees, the *General Information Number*, which may be obtained from the Secretary of the University upon request, should be consulted.

## OTHER FEES

**AND DEPOSITS** A fee of \$1 is charged to those students who receive from the Campus Patrol Office the privilege of parking motor vehicles on the campus.

A deposit of \$5, refundable when all books have been returned, is required for the withdrawal of books from the University library.

Laboratory, shop, field-trip, and incidental fees are charged for materials used and for other expenses in certain courses. The amounts of these fees are specified in the descriptions of the courses in which they are charged.

Deposits refundable upon return of apparatus, etc., are required in certain courses. The amounts of these deposits are specified in the descriptions of the courses in which they are charged.

Special fees are charged for individual instruction in music and for the use of practice facilities. For the amounts of these fees, see under the description of courses in music.

A fee of 10 cents per period is charged for the use of the University tennis courts and of the University swimming pool in Beebe Lake, adjacent to the campus.

## OTHER REGULATIONS

**CONCERNING FEES** If a student withdraws from the Summer Session, the Treasurer may refund a part of the tuition fee or cancel a part of the obligation that the student has incurred for tuition, provided the reason for the withdrawal be stated in writing and be satisfactory to the Treasurer and the Registrar. In such a case the student is required to pay twenty per cent of the term's tuition for each week or fraction of a week between the first registration day and the date of his certificate of withdrawal **unless the withdrawal is made before noon on Thursday, July 10.**

Students registering at any time during the last five weeks of the Summer Session are required to pay for the remainder of the term at the rate of twenty per cent of the term's tuition for each week or fraction of a week between the date of registration and the last examination day of the term.

Any student, graduate or undergraduate, except as hereinafter provided, who fails to pay his tuition, fees, and other indebtedness, or if entitled to free tuition fails to claim the same at the Treasurer's office and pay his fees, within the time prescribed by the University is thereby dropped from the University. When in his judgment the circumstances in a particular case so warrant, the Treasurer may allow an extension of time to complete payments. For such extension, the student will be assessed a fee of \$2. A reinstatement fee of \$5 will be assessed in the case of any student who is permitted to continue or return to classes after being dropped from the University for default in payments. For reasons satisfactory to the Treasurer and the Registrar, which must be presented in writing, the above assessment may be waived in any individual case.

Any tuition fee or other fee may be changed by the Trustees to take effect at any time without previous notice.

## SPECIAL REGULATIONS

**CONDUCT AND SCHOLARSHIP** The Summer Session is conducted under the general regulations governing conduct and scholarship which apply to all sessions of the University. Students are

expected to familiarize themselves with dormitory and other rules and to abide by them.

The University rules governing student conduct are:

"A student is expected to show both within and without the University unflinching respect for order, morality, personal honor, and the rights of others. The authority to administer this rule and to impose penalties for its violation is vested in the University Committee on Student Conduct. The rule is construed as applicable at all times, in all places, to all students of the University."

"A student may at any time be removed from the University if, in the opinion of the Committee on Student Conduct, his presence is not conducive to the University's best interests."

The officers of the University also reserve the right to cancel the registration of any student at any time for neglect of scholastic duties.

#### AUTOMOBILE REGULATIONS

Because of local traffic and parking conditions it is necessary to require registration of both motor vehicles and their drivers during the Summer Session, as well as during the academic year. Each student who maintains or operates a motor vehicle in or about Ithaca during the Summer Session must register with the Campus Patrol Office at the time of registration for courses. He will at the same time register the motor vehicle which he proposes to drive.

Because of limited parking facilities, it is necessary to restrict the privilege of parking motor vehicles on the campus to those students who apply for and receive special permits. These permits are issued by the Campus Patrol Office to those students whose need for them is greatest, and application for them should be made at the time of registration. The fee for a parking permit is \$1.

#### CASHING OF CHECKS

The Treasurer of the University accepts checks in settlement of charges payable at his office, but a rule of the Board of Trustees forbids him to cash any credit instrument, even to the extent of accepting a check or draft in amount greater than the sum due and returning the excess in cash. Students are therefore advised to open an account in an Ithaca bank as soon as they arrive in town, or else provide themselves with travelers' checks, drafts on New York City banks, money orders, or other form of credit instrument such as a bank will cash in the ordinary course of business.

#### FOREIGN STUDENTS

The University maintains on its staff a Counselor to Foreign Students whose duty is to look after the welfare of all students from other countries. It is suggested that all foreign students write to him before coming to Ithaca, or call upon him soon after arrival. He will be glad to help them find suitable living quarters and assist them with introductions. Letters of this kind should be addressed to Mr. Donald C. Kerr, Counselor to Foreign Students, Cornell Cosmopolitan Club, Ithaca, N. Y.

## LIVING QUARTERS

## ROOMS FOR WOMEN

The University has two groups of residential halls for women in which board and room can be obtained during the Summer Session by registered students only. They are:

*Sage College*, which accommodates 175 persons. Here the charge for room and a specified amount of laundry, for the Session, is from \$24 to \$39, according to the size and location of the room. The dining room will not be open. Board may be obtained at the dining rooms and cafeteria in Willard Straight Hall, or at the cafeteria in Martha Van Rensselaer Hall.

*Balch Hall*, which accommodates 318 persons. Here the charge for room, board, and a specified amount of laundry, for the Session, is from \$80 to \$95, according to the size and location of the room.

All women students who are twenty-one years of age and under are required to live in the University dormitories or sorority houses. This regulation applies to any students who are undergraduates at Cornell University or other colleges. Graduate women students may also secure rooms in the same residences or in other houses approved by the Dean of Women. The list of approved houses will be available after June 1 on application to the *Manager of Residential Halls*.

In the residential halls for women the charge for room and board includes dinner and lodging Saturday night, July 5 (not earlier), and all meals to and including breakfast Saturday, August 16.

Members of the Summer Session who lodge outside Balch Hall may obtain table board at that hall for \$9 a week, or \$48 for the six weeks of the Session.

The Head Residents in charge of the halls are glad to know the students, to advise them in illness or other emergency, and to give them whatever information they wish about the University or the town. It is understood that persons living in the halls will conform to the house regulations made for the convenience and comfort of all.

## ROOMS FOR MEN

Men regularly enrolled in the Summer Session can obtain comfortable rooms in the *Residential Halls for Men*, which are thoroughly modern and of fireproof construction.

In the *Residential Halls* the charge for furnished room, including care of the room and laundry of bed linen, is from \$18 to \$30 for the Session. There are a few suites at a higher rate, and a few rooms on the top floor may be had for less.

A list of private houses offering desirable rooms for men for the Session can be obtained after June 1 by application to the *Manager of Residential Halls*, *Morrill Hall*, *Ithaca*, N. Y.

## APPLICATIONS

## FOR ROOMS

Applications for rooms in any of the residential halls, either for women or for men, and for rooms in the approved houses for women, should be made to the *Manager of Residential Halls*, *Morrill Hall*, *Ithaca*, N. Y. Floor plans of the residential halls and other information about the rooms may be obtained, before making applications, by addressing the same office.



While most courses in the Summer Session begin on July 7 and end on August 15, certain courses begin on other dates, and not all courses are six weeks in length. Because of this, **all inquiries and applications for rooms should state the exact dates between which rooms are to be occupied.**

#### HOUSES AND

**APARTMENTS** Information about living quarters in private houses and apartments is also furnished upon request. This includes a list of rooms for women in private houses; a similar list of rooms for men; a list of apartments and private houses for rent; and a map of Ithaca to show the location of these places with reference to the campus. These lists are prepared about June 1 and may be obtained by addressing the *Manager of Residential Halls*.

#### DEPOSITS WITH

**APPLICATIONS** A *deposit of five dollars* must accompany each application for a room in any of the residential halls; otherwise the application will not be entertained. The rooms are reserved in the order of application. If a room assigned is occupied by the applicant, the amount of the deposit is held until the end of the Session to cover the return of keys and any damage to building or furniture other than ordinary wear and tear, and to insure the completion of the lease. The deposit will be refunded if the applicant gives formal notice to the Manager on or before June 15 that the applicant wishes to withdraw the application.

Checks should be drawn to the order of Cornell University.

#### DINING ROOMS,

**CAFETERIAS** Women who are members of the Summer Session and who reside outside Balch Hall may obtain table board at that hall for \$9 per week or \$48 for the six weeks of the Session. The dining rooms and cafeteria of Willard Straight Hall and the cafeteria in Martha Van Rensselaer Hall are open to both men and women students. Board may be obtained at these places and at cafeterias, dining rooms and restaurants near the campus at \$1.00 to \$1.25 per day.

#### COST OF LIVING

An estimate of the cost of living in Ithaca in the summer can be made by consulting the figures given above. In private houses rentals vary according to the location. Rooms are rented with the understanding that they will be occupied for the entire Session unless both parties agree otherwise. Table board is generally engaged by the week.

#### MEANS OF

**SELF SUPPORT** Opportunities for students to earn part of their expenses during the Summer Session are rare. Women who wish information on the subject should address Miss R. Louise Fitch, Office of the Dean of Women, Cornell University. Those who desire dining room work may write directly to the Manager of Residential Halls. Men may write to the University Placement Bureau, Willard Straight Hall, Cornell University.



## HEALTH SERVICE

The University Infirmary will not be open during the Summer Session. The Tompkins County Memorial Hospital will be available for hospital service and the staff of the hospital will be available for the medical needs of the Summer Session students.

### VACCINATION CERTIFICATES

Summer Session students are not required to offer a vaccination certificate at registration time unless they are also matriculating in one of the Schools or Colleges of the University. Students entering the Graduate School for the first time matriculate when they register in that School and must present a satisfactory certificate of vaccination.

## LIBRARIES

THE UNIVERSITY LIBRARY is open on week days from 7:50 A.M. to 10:30 P.M. In this building are the main library, containing about 800,000 volumes, and most of the seminary and special libraries. The main reading room affords accommodations for more than two hundred readers, and contains a selected library of about 8,000 volumes of reference works. Below stairs is the periodical room in which are kept the current numbers of about 500 journals in various fields of knowledge. These rooms are open to all students. Students properly qualified are allowed the use of the seminary rooms and the books in them. The main collection is primarily a library of reference for use in the building. Students are, however, to a limited extent, allowed to take out books for home use. Persons wishing this privilege must make a deposit of \$5, which will be refunded upon the return of all books taken out.

THE LIBRARY OF THE COLLEGE OF AGRICULTURE, in Stone Hall, is open on week days from 9 A.M. to 5 P.M., except Saturday when it is closed at 1 P.M. In it will be found a large collection of bulletins and reports of experiment stations, reference books on agriculture and country life, agricultural periodicals, and the like. The entomological library in Comstock Hall is one of the most complete of its kind in the United States. Nearly all of the departments in which instruction is given have well-selected departmental libraries.

The library of recorded music and scores to parallel these recordings is available in the Music Building for the use of the general student body. This library may be used in the Music Building only, during the hours 9 A.M. to 5 P.M. and 7 P.M. to 10 P.M. daily except Sunday, and on Sunday afternoons from 2:00 P.M. to 5:00 P.M.

## RECREATION AND PUBLIC EVENTS

WILLARD STRAIGHT HALL, the student union of Cornell University, is the gathering place for students and faculty. It is the social center of the University. The building contains lounges for men and women, activity rooms for student meetings, rooms for games and for classes in folk dancing, the University Theatre where motion pictures and dramatic productions are given each week, a billiards and game room for men, a barber shop for men, a browsing library well stocked with books of general interest, and an art room. On the upper

floors of the Hall are sleeping rooms used principally by parents and guests of students, by alumni, and by guests of the University. The dining rooms—main dining room, sandwich room, cafeteria, and soda bar—occupy the entire floor below the main floor.

Willard Straight Hall is for the use of members of the University; but guests of members may secure guest cards for limited periods upon application to the Director of the Hall.

#### LECTURES

A public lecture, open to all Summer Session students, is given each Monday evening of the Session. The lecturers are distinguished members of the faculty and the subjects are chosen for their general interest and timeliness. Each Wednesday evening several public lectures are given on subjects of more restricted interest in connection with the work of various departments.

#### SAGE CHAPEL

Religious services are conducted in Sage Chapel throughout the academic year by clergymen of various religious denominations. There will be services in the Chapel on five Sundays during the Summer Session, July 13 to August 10 inclusive.

#### CONCERTS

A series of five Thursday evening concerts will be given in Bailey Hall at 8:15 P.M. during the first five weeks of the Summer Session. These Thursday evening concerts are free to all students and members of the faculty.

#### CHORUS

All members of the Summer Session who are interested in singing in a chorus of mixed men's and women's voices, are asked to meet in the choir loft of Sage Chapel on Thursday afternoon, July 10, at five o'clock. At this time a schedule of rehearsals will be arranged in accordance with the desires of those interested. The chorus will be directed by Richard T. Gore, Assistant Professor of Music, and University Organist.

#### CHAMBER ORCHESTRA

The String Sinfonietta, Ronald Ingalls, conductor, which plays throughout the regular academic year, will rehearse regularly during the Summer Session and will play one concert. Members of the Summer Session who wish to join this organization should apply to Professor Ingalls at Barton Hall on Monday, July 7, or at his office in the Music Building on Wednesday, July 9.

#### SUMMER

**THEATRE** During the Summer Session performances are given by the Summer Theatre Company on Friday and Saturday evenings. The performances are given in the theatre of Willard Straight Hall; an admission charge is made. The plays to be produced will be announced each week in the Weekly Calendar.

The plays of the Summer Theatre Company are directed by Professors Drummond and Stainton, assisted by other members of the Direction Staff. Regularly enrolled members of the courses in Dramatic Production,

and no others, may compete for places in the casts and production staffs; detailed announcements will be made in the various classes.

#### MODERN

**ART FILMS** Selections from Modern Art Films will be presented weekly by the Summer Theatre. Noteworthy recent foreign films are included in the series. Tickets for the series will be on sale in Willard Straight Hall.

#### DEMONSTRATIONS AT

**THE OBSERVATORY** A series of demonstration lectures, illustrated by observations with the 12-inch telescope when the weather permits, will be given on Monday, Wednesday, and Friday evenings throughout the Session at the Fuertes Observatory. During the first week of the Session these lectures will be open to all registered students; admission after the first week will be by tickets which may be obtained at the Summer Session office. For further information see page 48.

#### EXCURSIONS

Excursions in connection with the work of certain departments are made to many points of interest. Some of them are open to all members of the Summer Session. Especially noteworthy are the excursions conducted by the Department of Geography and Geology to Enfield Glen, to Watkins Glen, and to Lake Ontario. Details of the plans for these are given on pages 45 and 46.

Certain field trips conducted by members of the Department of Botany are open to interested persons upon application. Further information may be obtained at the Summer Session office.

#### DANCES

Each Saturday evening a dance, open to all members of the Summer Session, is held in Willard Straight Hall. Instruction in folk dancing and social dancing is given each week by competent instructors.

#### SPORTS

Tennis courts, conveniently located about the campus, are available for use for a small fee. Class instruction and private lessons in tennis are offered by members of the Department of Physical Education; tennis, badminton and golf tournaments and a swimming meet are arranged as part of the recreational program of the Summer Session. A nine-hole golf course is operated by the Department of Physical Education and Athletics; for information about conditions for its use and fees, address Mr. R. J. KANE, Schoellkopf Bldg., Cornell University. A gorge at one end of Beebe Lake, on the campus, forms a natural swimming pool, where a guard is on duty every day of the Session. Other excellent swimming pools and beaches are available in the three state parks which are located within 30 minutes driving distance from the University. For further information about outdoor recreational activities, see page 39.

#### SCHEDULE OF

**PUBLIC EVENTS** A schedule of the public events of the Summer Session is printed about June 1; a copy will be sent upon request. Copies will also be available on registration day.

## OFFICERS AND FACULTY

### OFFICERS

EDMUND EZRA DAY, B.S., M.A., Ph.D., LL.D., President of the University.  
EUGENE FRANCIS BRADFORD, Ph.D., Registrar and Director of Admissions.  
R. LOUISE FITCH, M.A., Dean of Women.  
LOREN C. PETRY, Ph.D., Director of the Summer Session and Chairman of the Administrative Board.

### ADMINISTRATIVE BOARD

JULIAN EDWARD BUTTERWORTH, Ph.D., Director of the School of Education and Professor of Rural Education.  
GUSTAVUS WATTS CUNNINGHAM, Ph.D., Professor of Philosophy.  
WILLIAM WELCH FLEXNER, Ph.D., Associate Professor of Mathematics.  
HOWARD BAGNALL MEEK, Ph.D., Professor of Hotel Administration.  
BENTON SULLIVAN MONROE, Ph.D., Professor of English.  
GEORGE HOLLAND SABINE, Ph.D., Dean of the Graduate School and Professor of Philosophy.

### FACULTY

GEORGE PLIMPTON ADAMS, JR., B.A., Instructor in Economics.  
RALPH PALMER AGNEW, Ph.D., Professor of Mathematics.  
ARTHUR F. AHR, B.S. in Ed., Supervisor of Industrial Arts, Beacon, N. Y.  
HARRY DARKES ALBRIGHT, Ph.D., Assistant Professor of Public Speaking.  
ARTHUR AUGUSTUS ALLEN, Ph.D., Professor of Ornithology.  
MRS. ELSA GUERDRUM ALLEN, Ph.D., Instructor in Ornithology.  
RAYMOND CLAYTON ALLEN, Ph.D., Instructor in Floriculture.  
HOWARD RICHMOND ANDERSON, Ph.D., Associate Professor of Education.  
WALFRID ALBIN ANDERSON, Ph.D., Professor of Rural Sociology.  
MRS. PHYLLIS BETTS ARLT, M.A., Assistant in Public Speaking.  
RICHARD J. BAILEY, Ph.D., Instructor in Education, Hofstra College, New York City.  
MRS. KERSTIN THORIN BAIRD, M.S., Instructor in Physical Education.  
WILLIAM CYRUS BALLARD, JR., M.E. (in E.E.), Professor of Electrical Engineering.  
JOHN ROBERT BANGS, JR., M.E., Professor of Administrative Engineering.  
BARBARA JOSEPHINE BARBER, B.S., Instructor in Home Economics.  
THOMAS SWAIN BARCLAY, Ph.D., Professor of Political Science, Stanford University, California.  
MILLARD VERNON BARTON, M.S. (in C.E.), Assistant Professor of Mechanics of Engineering.  
M. NOBLE BATES, M.A., Assistant in Zoology.  
THOMAS LEVINGSTON BAYNE, Ph.D., Assistant Professor of Education.  
MARION F. BEAN, B.S., Assistant in Home Economics.  
CORA ELLA BINZEL, M.A., Professor of Rural Education.  
MORRIS GILBERT BISHOP, Ph.D., Professor of Romance Languages.  
BEULAH BLACKMORE, B.S., Professor of Home Economics.  
ALBERT WILHELM BOESCHE, Ph.D., Professor of German.  
SAMUEL LATIMER BOOTHROYD, M.S., Professor of Astronomy and Geodesy.  
LEROY CLINTON BREUNIG, JR., M.A., Instructor in Romance Languages.  
ARTHUR WESLEY BROWNE, Ph.D., Professor of Inorganic Chemistry.  
SAMUEL M. BROWNELL, Ph.D., Professor of Education, Yale University, New Haven, Conn.  
WILLIAM FAUSSET BRUCE, Ph.D., Assistant Professor of Chemistry.  
OLGA PAULINE BRUCHER, M.A., Assistant Professor of Home Economics.  
MRS. HELEN DUDLEY BULL, M.D., Professor of Home Economics.  
JAMES DABNEY BURFOOT, JR., Ph.D., Assistant Professor of Geology.  
EARL NELSON BURROWS, M.C.E., Assistant Professor of Structural Engineering.

- JULIAN EDWARD BUTTERWORTH, Ph.D., Professor of Rural Education and Director of the School of Education.
- HARRY CAPLAN, Ph.D., Professor of the Classics.
- CHARLES E. CLADEL, M.S., Instructor in Hotel Accounting.
- STEPHEN FARRELL CLEARY, M.M.E., Assistant Professor of Engineering Drawing.
- WILLIAM EARLE COLE, Ph.D., Professor of Sociology, University of Tennessee, Knoxville, Tenn.
- JACOB ROLAND COLLINS, Ph.D., Professor of Physics.
- WALTER RODNEY CORNELL, C.E., Professor of Mechanics of Engineering.
- LEONARD SLATER COTTRELL, JR., Ph.D., Professor of Sociology.
- JOHN COURTNEY, M.S., Assistant Professor of Hotel Accounting.
- LOWELL CLEM CUNNINGHAM, Ph.D., Associate Professor in Farm Management.
- OTIS FREEMAN CURTIS, Ph.D., Professor of Botany.
- RALPH WRIGHT CURTIS, M.S.A., Professor of Ornamental Horticulture.
- JOATHAN WADHAMS CURVIN, Ph.D., Assistant Professor of Public Speaking, Hobart College, Geneva, N. Y.
- GEORGE IRVING DALE, Ph.D., Professor of Romance Languages and Literatures.
- KARL M. DALLENBACH, Ph.D., Professor of Psychology.
- CHARLES DOUGLAS DARLING, M.D., Assistant Professor of Hygiene.
- ADAM CLARKE DAVIS, M.E., Professor of Experimental Engineering.
- ARTHUR LOWELL DEERING, D.Sc., Dean of the College of Agriculture, University of Maine, Orono, Me.
- JOSEPH C. DOANE, M.D., Medical Director of the Jewish Hospital, Philadelphia, Pa.
- ALEXANDER M. DRUMMOND, M.A., Professor of Public Speaking.
- HOWARD SPENCER DYE, Assistant in Tennis.
- ARTHUR JOHNSON EAMES, Ph.D., Professor of Botany.
- RUSSELL BRAYTON EATON, Ph.D., Instructor in Chemistry.
- LYNN ARTHUR EMERSON, Ph.D., Professor of Industrial Education.
- MARK ENTORF, A.B., Associate Professor of Home Economics.
- MRS. JEANNETTE EVANS, M.D., Assistant Professor of Hygiene.
- FAITH FENTON, Ph.D., Assistant Professor of Home Economics.
- EMERY N. FERRISS, Ph.D., Professor of Education.
- ERNEST S. FORD, M.S., Instructor in Botany.
- ALLAN CAMERON FRASER, Ph.D., Professor of Plant Breeding and Genetics.
- FRANK SAMUEL FREEMAN, Ed.D., Professor of Education.
- JESSIE ALICE FREEMAN, M.S., Instructor in Home Economics.
- WALTER HOYT FRENCH, Ph.D., Associate Professor of English.
- PEARL GARDNER, Ph.D., Instructor in Rural Education.
- HENRY GIBSON, M.M., Head of Department of Music, Heidelberg College, Tiffin, Ohio.
- MARTIN GOLAND, M.E., Instructor in Mechanics of Engineering.
- ALPHEUS MANSFIELD GOODMAN, B.S.A., Professor of Agricultural Engineering.
- EVA LUCRETIA GORDON, M.S., Assistant in Rural Education.
- RICHARD TAYLOR GORE, M.A., Assistant Professor of Music and University Organist.
- GUY EVERETT GRANTHAM, Ph.D., Professor of Physics.
- JACOB M. GRAY, M.C.E., Chairman of the Department of Technical Drafting and Design, Technical High School, Brooklyn, N. Y.
- H. VICTOR GROHMANN, B.S., Specialist in Hotel Advertising.
- ALFRED H. GROMMON, M.A., Ithaca High School, Ithaca, N. Y.
- WILLIAM JOHN HAMILTON, JR., Ph.D., Assistant Professor of Zoology.
- GEORGE RAYMOND HANSELMAN, M.E., Assistant Professor of Administrative Engineering.
- WILLIAM GEORGE HARDY, M.A., Instructor in Public Speaking, New York State Teachers College, Albany, N. Y.
- DAVID HARRIS, Ph.D., Associate Professor of History.
- KATHERINE WYCKOFF HARRIS, M.A., Professor of Home Economics.
- VAN BREED HART, Ph.D., Professor of Farm Management.
- JOHN A. HARTELL, B.Arch., Assistant Professor of Architecture.
- HAZEL MARIE HAUCK, Ph.D., Professor of Home Economics.
- GLENN WILBUR HEDLUND, Ph.D., Assistant Professor of Marketing.
- GRACE MILDRED HENDERSON, Instructor in Home Economics.
- FRITZ HERZOG, Ph.D., Instructor in Mathematics.
- WALTER N. HESS, Ph.D., Professor of Biology, Hamilton College, Clinton, N. Y.
- FRANK FORREST HILL, Ph.D., Professor of Land Economics.



- JAMES LYNN HOARD, Ph.D., Assistant Professor of Chemistry.  
 PAUL THOMAS HOMAN, Ph.D., Professor of Economics.  
 JOSEPH DOUGLAS HOOD, Ph.D., Acting Assistant Professor of Biology.  
 EDWIN RAYMOND HOSKINS, Ph.D., Assistant Professor of Rural Education.  
 ERIC VAIL HOWELL, M.C.E., Assistant Professor of Mechanics.  
 MELVIN LOVELL HULSE, Ph.D., Assistant Professor of Education.  
 WALLIE ABRAHAM HURWITZ, Ph.D., Professor of Mathematics.  
 RONALD INGALLS, B.Mus., Assistant Professor of Music.  
 MRS. PEARL ZIEGLER JANSSEN, M.S., Instructor in Home Economics.  
 JOSEPH OLMSTEAD JEFFREY, M.M.E., Assistant Professor of Experimental Engineering.  
 BURTON AARON JENNINGS, B.S., Professor of Agricultural Engineering.  
 ARNO JEWETT, Ph.D., State Teachers College, Tempe, Arizona.  
 PHILLIP GUSTAV JOHNSON, Ph.D., Assistant Professor of Rural Education.  
 BURTON WADSWORTH JONES, Ph.D., Associate Professor of Mathematics.  
 CHARLES WILLIAM JONES, Ph.D., Assistant Professor of English.  
 ELTON WRIGHT JONES, M.S., Instructor in Electrical Engineering.  
 RIVERDA HARDING JORDAN, Ph.D., Professor of Education.  
 MARK KAC, Ph.D., Instructor in Mathematics.  
 PETER PAUL KELLOGG, Ph.D., Assistant Professor of Ornithology.  
 MYRON SLADE KENDRICK, Ph.D., Professor of Public Finance.  
 GEORGE ALEXANDER KENNEDY, Ph.D., Assistant Professor of Chinese Languages and Literature, Yale University, New Haven, Conn.  
 CATHERINE KNAPP, Teacher in the Belle Sherman School, Ithaca, N. Y.  
 PAUL J. KRUSE, Ph.D., Professor of Rural Education.  
 JULIA KSIONZYK, B.S., Teacher of Home Economics, Tappan Zee High School, Piermont, N. Y.  
 HERMANN WALTHER VICTOR LANGE, Ph.D., Assistant Professor of German.  
 MRS. HELENA LEAHY, M.S., Instructor in Home Economics.  
 GORDON SCOTT LITTLE, Coach of Swimming.  
 FRANKLIN A. LONG, Ph.D., Assistant Professor of Chemistry.  
 FREDERICK GEORGE MARCHAM, Ph.D., Professor of English History.  
 CLYDE WALTER MASON, Ph.D., Professor of Chemistry.  
 ROBERT MATHESON, Ph.D., Professor of Economic Entomology.  
 TERRELL B. MAXFIELD, B.S., Lecturer in Hotel Accounting.  
 HOWARD BAGNALL MEEK, Ph.D., Professor of Hotel Administration.  
 MRS. CHARLOTTE B. MERRELL, B.S., Formerly Assistant Professor of Institution Management.  
 ARTHUR MERTZKE, President, National Property Appraisal Service, Inc., New York City.  
 WILLIAM TAYLOR MILLER, Ph.D., Instructor in Chemistry.  
 AILEEN W. MOEN, Teacher in the Central School, Van Hornesville, N. Y.  
 BENTON SULLIVAN MONROE, Ph.D., Professor of English.  
 CLYDE B. MOORE, Ph.D., Professor of Rural Education.  
 RICHARD ALAN MORDOFF, Ph.D., Professor of Meteorology.  
 CHARLES L. MOSHER, Ph.B., Chief, Bureau of Child Accounting and Attendance, State Education Department, Albany, N. Y.  
 JOHN ROBERT MOYNIHAN, M.M.E., Assistant Professor of Experimental Engineering.  
 WALTER CONRAD MUENSCHER, Ph.D., Professor of Botany.  
 D. E. MURRAY, B.A., Director of Physical Education, Madison Junior High School, Rochester, N. Y.  
 HENRY ALONZO MYERS, Ph.D., Associate Professor of English.  
 JULIETTE MYREN, B.S., Instructor in Related Art, University of Minnesota, Minneapolis, Minn.  
 CHARLES MERRICK NEVIN, Ph.D., Professor of Geology.  
 MELVIN LORREL NICHOLS, Ph.D., Professor of Chemistry.  
 EDWIN NUNGEZER, Ph.D., Associate Professor of English.  
 ROY A. OLNEY, Ph.D., Assistant Professor of Education.  
 E. LAURENCE PALMER, Ph.D., Professor of Rural Education.  
 LYMAN GEORGE PARRATT, Ph.D., Assistant Professor of Physics.  
 FRANK ASHMORE PEARSON, Ph.D., Professor of Prices and Statistics.  
 EGON PETRI, Mus. Doc., Pianist in Residence.  
 LOREN CLIFFORD PETRY, Ph.D., Professor of Botany and Director of the Summer Session.  
 MARION CAROLINE PFUND, Ph.D., Professor of Home Economics.



- L. BELLE POLLARD, M.A., Supervisor, Family Life Education for Adults, St. Louis Public Schools, St. Louis, Mo.
- ROBERT ARNOLD POLSON, Ph.D., Assistant Professor of Rural Sociology.
- JOSEPH PULLMAN PORTER, M.S.A., Acting Professor of Ornamental Horticulture.
- ALFRED M. S. PRIDHAM, Ph.D., Instructor in Floriculture.
- FRANK H. RANDOLPH, M.E., Professor of Institution Engineering.
- JOHN ADAM FITZ RANDOLPH, Ph.D., Assistant Professor of Mathematics.
- PHILIP ADNA READIO, Ph.D., Professor of Economic Entomology.
- ANNA YEOMANS REED, Ph.D., Lecturer in Guidance and Personnel in the School of Education.
- KATHERINE REEVES, A.B., Assistant Professor of Home Economics.
- ROBERT SIGMUND REICH, B.S., Instructor in Ornamental Horticulture.
- EDWIN O. REISCHAUER, Ph.D., Instructor in Far Eastern Languages, Harvard University, Cambridge, Mass.
- DOROTHY DEANE ROBERTS, M.S., Instructor in Home Economics.
- JOHN ROBERTS, Director of Purchases, Doherty Hotel Company, Florida.
- MRS. LEMO DENNIS ROCKWOOD, Ph.D., Professor of Home Economics.
- LOUIS MICHAEL ROEHL, B.S., Professor of Farm Mechanics.
- MRS. NANCY MCNEAL ROMAN, M.A., Professor of Home Economics.
- JOHN BARKLEY ROSSER, Ph.D., Associate Professor of Mathematics.
- THOMAS ARTHUR RYAN, Ph.D., Instructor in Psychology.
- WILLIAM MERRITT SALE, Ph.D., Associate Professor of English.
- DWIGHT SANDERSON, Ph.D., Professor of Rural Sociology.
- RUTH JEAN SCOTT, B.S., Assistant Professor of Home Economics.
- ARNOLD SHIRCLIFFE, Wrigley Building Restaurant, Chicago, Ill.
- DONALD SMELZER, Superintendent, Graduate Hospital, University of Pennsylvania, Philadelphia, Pa.
- DEAN FRANKLIN SMILEY, M.D., Professor of Hygiene.
- LLOYD PRESTON SMITH, Ph.D., Professor of Physics.
- MRS. RUTH HENDERSON SMITH, M.S., Instructor in Home Economics.
- THEODORE SNOOK, Ph.D., Assistant Professor of Histology, Syracuse University, Syracuse, N. Y.
- WALTER HUTCHINSON STANTON, Ph.D., Associate Professor of Public Speaking.
- CLIFFORD NICKS STARK, Ph.D., Professor of Bacteriology.
- THOMAS SPROSTON, JR., B.S., Instructor in Plant Pathology.
- ROLLAND MACLAREN STEWART, Ph.D., Professor of Rural Education.
- JOSEPHINE STRODE, M.A., Instructor in Rural Sociology.
- EVERETT MILTON STRONG, B.S. (in E.E.), Assistant Professor of Electrical Engineering.
- CHARLES HACKETT SYDNOR, Ph.D., Professor of History, Duke University, Durham, N.C.
- GERALD FREDERICK TAPE, Ph.D., Instructor in Physics.
- FRANC THÉNAUD, Licencié-en-Droit, Assistant Professor of Romance Languages, Lafayette College, Easton, Pa.
- CHARLES KENNETH THOMAS, Ph.D., Associate Professor of Public Speaking.
- FLORA M. THURSTON, M.S., Professor of Home Economics Education.
- DIRAN HAGOPOS TOMBOULIAN, Ph.D., Assistant Professor of Physics.
- JOHN E. TRAINER, M.S., Assistant in Rural Education.
- JOEL TRAPIDO, M.A., Assistant in Public Speaking.
- LEONARD CHURCH UROUHART, C.E., Professor of Structural Engineering.
- OSCAR DIEDRICH VON ENGELN, Ph.D., Professor of Physical Geography.
- RUSSELL HALDERMAN WAGNER, Ph.D., Associate Professor of Public Speaking.
- CHARLES R. WALLENDORF, M.A., Supervisor of Related Technical Subjects in Vocational Schools, New York City.
- MRS. ETHEL BUSHNELL WARING, Ph.D., Professor of Home Economics.
- KENNETH L. WASHBURN, M.F.A., Assistant Professor of Fine Arts.
- PAUL JOHN WEAVER, B.A., Professor of Music.
- DONALD STUART WELCH, Ph.D., Associate Professor of Plant Pathology.
- HARRY PORTER WELD, Ph.D., Professor of Psychology.
- JOHN WEST WELLS, Ph.D., Instructor in Geology, Ohio State University, Columbus, Ohio.
- ELLIS HOBART WHITAKER, M.S., Assistant in Botany.
- HERBERT AUGUSTUS WICHELSN, Ph.D., Professor of Public Speaking.
- KARL MCKAY WIEGAND, Ph.D., Professor of Botany.

DELPHA WIESENDANGER, M.S., Assistant Professor of Home Economics.  
ANDREW LEON WINSOR, Ph.D., Professor of Rural Education.  
JOHN PALEN WOOD, M.E.E., Instructor in Electrical Engineering.  
ELIZABETH DOROTHY WORMAN, M.A., Assistant in Public Speaking.  
ALBERT HAZEN WRIGHT, Ph.D., Professor of Zoology.  
FORREST BLYTHE WRIGHT, Ph.D., Assistant Professor of Agricultural Engineering.  
BENJAMIN PERCY YOUNG, Ph.D., Associate Professor of Zoology.  
CHARLES VAN PATTEN YOUNG, B.A., Professor of Physical Education.

# COURSES OF INSTRUCTION

## UNDERGRADUATE AND GRADUATE COURSES

There is, in general, no sharp distinction at Cornell University between undergraduate and graduate courses. In this Announcement each course is marked immediately after the title in one of three ways:

**Undergraduate.** These courses are intended primarily for undergraduates. Students registered in the Graduate School of Cornell University will not receive credit for these courses toward an advanced degree unless such credit is specifically recommended by the special committee in charge of their work.

**Graduate.** These courses are intended primarily for students who are candidates for advanced degrees, and for teachers and others who wish certification to accrediting agencies for work done at the graduate level. Undergraduates with adequate preparation may register for these courses only after receiving permission from the instructors in charge.

**Undergraduate and graduate.** These courses are open to graduates and advanced undergraduates. Graduates registering for these courses who are candidates for advanced degrees or who wish certification to accrediting agencies for work done at the graduate level must indicate on their registration blanks their intention to complete the course at the graduate level and must be prepared to do any additional work that may be required.

## CLASS SCHEDULES

In most courses of instruction, classes will meet five times a week, on each week day except Saturday. Such classes will meet on July 12, the first Saturday of the Session, but on no other Saturdays. Class periods begin on the hour unless otherwise indicated, and are fifty minutes in length. Laboratory periods are of various lengths, as indicated in the description of courses which include laboratory work. The meeting place of each course is given in the description of the course. Goldwin Smith Hall is indicated by the symbol GS: all other buildings are named.

## ARRANGEMENT OF SUBJECTS

Subjects of instruction are grouped into the following twelve divisions; in each division subjects of instruction are arranged alphabetically. The index at the end of this Announcement should be referred to for subjects not readily found.

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## FINE ARTS

### DRAWING AND PAINTING

The following courses correspond generally to those of the regular session of the University. Classes are small enough to permit individual instruction adapted to the students' needs. The advanced student is given work and criticism according to his ability. All materials needed may be obtained in Ithaca.

In all courses one hour credit will be given for each five hours of laboratory work per week. Credit hours to be arranged upon registration.

A student may register repeatedly in successive Summer Sessions for credit in courses S 3, S 6, S 7, and S 8.

Courses will be given by Assistant Professors HARTELL and WASHBURN.

**S 1. Elementary Drawing.** Undergraduate; credit two to four hours. Daily except Sat., 8-12. *Third floor, Franklin.*

This course is for beginners in drawing. There will be discussions of the elementary principles of representative drawing and exercises in pencil and charcoal.

**S 3. Drawing and Painting from the Human Figure.** Undergraduate; credit two to four hours. Daily except Sat., 10-12. *Third floor, Franklin.*

Study from living model in charcoal or in oil. Course S 1 or its equivalent is prerequisite to this course. A studio fee of \$10 is charged.

**S 4. Elementary Color.** Undergraduate; credit two to four hours. Daily except Sat., 8-12. *Third floor, Franklin.*

A course for beginners in color. Two hours of this course may be combined with two hours of S 1. Discussion of the principles of color as applied to representation and exercises in pastel, water color and oil.

**S 6. Outdoor Sketching in Color.** Undergraduate; credit two to four hours. Daily except Sat., 10-12, 2-4. *Third floor, Franklin.*

A knowledge of the elements of drawing and the elements of color is a prerequisite to this course. Instruction is given in oil from landscape.

The unusual variety and charm of the natural environment of Cornell give an abundance of subject-matter from which to work. There are woodland, open farming country, lakes and streams, broad panoramic views, and rugged gorges within easy walking distance of the campus.

**S 7. Drawing and Painting.** Undergraduate; credit two to four hours. Daily except Sat., 8-12. *Third floor, Franklin.*

Open to students with experience in drawing and painting. The work assigned will aim to satisfy the needs of the individual students registered.

**S 8. Sculpture.** Undergraduate; credit two to four hours. Daily except Sat., 10-12, 2-4. *Third floor, Franklin.*

Studio work in modeling and carving. Problems will be set to meet the needs of the individual student.

## MUSIC

**S 1. Theory and Practice of Music.** Undergraduate; credit two hours. Daily except Sat., 9. Open to all students who have had little or no training in music. Students offering music for entrance credit may not take this course for credit. *Music Building, 320 Wait Avenue.* Assistant Professor GORE.

An elementary course in the theory of music, including notation and terminology, scale, interval and chord structure, melody writing, ear training, sight singing, and the elements of musical design.

**S 5a. The Art of Music.** Undergraduate; credit two hours. Daily except Sat., 10. Open to sophomores and upperclassmen. *Music Building, 320 Wait Avenue.* Professor WEAVER.

An approach to the rational understanding and enjoyment of the art of music. This part of the course considers especially the smaller forms employed by the composers of the classic and romantic schools, and is illustrated by various types of orchestral, chamber, violin, piano and vocal music. The course is taught from the appreciative standpoint.

**S 8. The Orchestra.** Undergraduate; credit two hours. Daily except Sat., 2. Open to all students. *Music Building, 320 Wait Avenue.* Assistant Professor INGALLS.

A study of the tone-colors, characteristics and capacities of the instruments of the orchestra, and of their functions singly and in combinations; and of the orchestra as a whole and of various aspects of orchestral music. A non-technical course, requiring no ability to play these instruments and taught from the appreciative standpoint.

**S 10b. History of Music.** Undergraduate; credit two hours. Daily except Sat., 12. Open to sophomores and upperclassmen. *Music Building, 320 Wait Avenue.* Professor WEAVER.

A survey of the evolution of the art of music, with particular reference to questions of style and to the place of music in the artistic and social life of nations. This part of the course covers the period from Bach and Handel to the present day.

**S 12. Chamber Music.** Undergraduate; credit two hours. Daily except Sat., 11. Open to all students. *Music Building, 320 Wait Avenue.* Assistant Professor INGALLS.

The study of a series of trios, quartets and other types of chamber music selected from the works of the greatest masters in this field of composition. A non-technical course, requiring no performing ability and taught from the appreciative standpoint.

**S 13. Organ Music.** Undergraduate; credit two hours. Daily except Sat., 11. Open to all students. *The Sage Chapel*. Assistant Professor GORE.

The study of typical pieces of organ music selected from the works of the greatest masters in this field of composition. A non-technical course, requiring no performing ability and taught from the appreciative standpoint.

**Informal Study.** Graduate; credit two or more hours. Hours to be arranged. Professor WEAVER, Assistant Professors GORE and INGALLS.

A limited number of graduate students will be accepted for informal study, either in connection with the undergraduate courses listed above or for personally guided work. Students interested in this work should consult Professor Weaver at the beginning of the term, and will be assigned to the proper specialist in the staff.

**Applied Music.** Individual instruction in organ, piano, violin and viola. Credit one or two hours for students majoring in music; for other students, no credit. Hours to be arranged. *Music Building, 320 Wait Avenue*. Assistant Professors GORE and INGALLS, and Mr. GIBSON.

Individual instruction is offered in organ under Assistant Professor GORE, in piano under Mr. GIBSON, and in violin and viola under Assistant Professor INGALLS. The normal registration involves two half-hour lessons a week at a special fee of \$2 a period. Practice facilities are available for each instrument; the fee for a daily practice hour for the term is \$3 in the case of a room with piano in the Music Building, and \$11 in the case of the pipe organs in Bailey Hall and the Sage Chapel.

Permission to register for this work, whether with or without credit, should be obtained from Professor WEAVER. After such permission is granted, the student should consult the teacher about lesson hours, and the secretary of the department about practice hours.

**Master Class for Pianists.** EGON PETRI, Pianist in Residence.

Individual instruction will be given to a limited number of artist-pupils during the Summer Session, and these pupils will meet as a group for demonstrations and programs at hours to be arranged. A special fee of \$100 is charged for one lesson a week for the six-week period. Special living and practice accommodations are available. All applications for this Master Class must be made in advance of the beginning of the Summer Session, and should be addressed to Professor PAUL J. WEAVER, Chairman of the Department of Music, 320 Wait Avenue.

**Chorus.** No credit. All men and women interested in singing in a Summer Session chorus will meet at 5 P.M. on Thursday, July 10, in the *choir loft* of the *Sage Chapel*, for discussion of plans and decision on a suitable schedule of rehearsals. The chorus will be conducted by Assistant Professor GORE.

**Orchestra.** No credit. Members of the Summer Session interested in joining the orchestra should consult Assistant Professor INGALLS on Monday, July 7, at *Barton Hall*, or immediately thereafter, at his office in the *Music Building, 320 Wait Avenue*.

## LANGUAGES AND LITERATURES, PUBLIC SPEAKING, AND DRAMA

### ENGLISH

Courses S 1 and S 2 taken together will be accepted as the equivalent of the second term of English 2 in the regular University session.

**S 1. Freshman Composition.** Undergraduate; credit two hours. Daily except Sat., 8. GS 128. Assistant Professor JONES.

A study of the principles of composition with frequent practice in writing exposition. Reading of models, class discussions, and conferences.

**S 2. Introductory Courses in Literature.** Undergraduate; credit two hours. Daily except Sat., 9. GS 128. Assistant Professor JONES.

A survey and discussion of the problems of critical reading, for those who have not had other college courses in English literature. Plays of Shakespeare and shorter poems of Browning will be read.

**S 7. Nineteenth Century Poetry.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. GS 162. Professor MONROE.



A study and discussion of the most important poems of Byron, Shelley, and Keats. Texts: *Byron*, ed. Chew and Bredvold, 2 vols.; Modern Library *Keats and Shelley*.

S 8b. **Modern Poetry.** Undergraduate and graduate; credit two hours. Daily except Sat., 12. GS 160. Associate Professor FRENCH.

The leading British poets from 1890 to the present. Texts: Untermeyer, *Modern American and Modern British Poetry* (fifth revised edition); Sanders and Nelson, *Chief Contemporary Poets*.

S 11. **American Literature to the Civil War.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. GS 156. Associate Professor MYERS.

A study of selections from the writings of Irving, Bryant, Cooper, Poe, Emerson, Thoreau, Hawthorne, Melville, Longfellow, Whittier, Holmes, Lowell, and Whitman. Texts: Spiller, *The Roots of National Culture*; McDowell, *The Romantic Triumph*; Whitman, *Leaves of Grass*.

S 14. **The Modern Novel.** Undergraduate and graduate; credit two hours. Daily, except Sat., 10. GS 162. Associate Professor SALE.

A critical study of modern fiction, with the reading of representative novels of Flaubert, Hardy, Turgenev, Conrad, Forster, and Virginia Woolf.

S 15a. **Poetry of the Victorian Age.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. GS 160. Associate Professor FRENCH.

A study of Tennyson, Rossetti, Swinburne, and others. Text: *Victorian and Later English Poets*, edited by Stephens, Beck, and Snow.

S 16. **The English Language.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. GS 162. Professor MONROE.

A study of some significant features in the growth and development of the mother tongue; language and grammar in general; some misconceptions about the life of language; the relationships of English; idiom; the English vocabulary; inflections; native resources and foreign influences; the bearing of historical grammar on present forms and usages, spoken and written.

Baugh's *History of the English Language* is used as a basis for recitations, lectures, and collateral reading. The course does not require previous knowledge of Old or Middle English. Extra work is required for credit in the Graduate School.

S 17. **The Modern Drama.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. GS 160. Dr. JEWETT.

A study of the themes, characteristics, and structure of representative plays from Ibsen to the present. American, English, and continental drama as it relates to contemporary thought and social conditions.

S 20. **Shakespeare.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. GS 156. Associate Professor NUNGEZER.

A study of the dramatic art of Shakespeare as illustrated by *Hamlet*, *Macbeth*, *King Lear*, and *Antony and Cleopatra*; with supplementary readings.

[S 22. **Milton.** Given in alternate summers; not given in 1941.]

[S 24. **Chaucer.** Given in alternate summers; not given in 1941.]

S 31. **Dramatic Literature.** Undergraduate and graduate; credit two hours. First meeting T, 2:30; subsequent hours to be arranged. GS 183. Associate Professor MYERS.

A study of tragedy based on thirty examples from the drama of Greece and France (in translation) and Elizabethan England. Lectures on theories of tragedy will accompany the reading of the plays; discussions and papers will provide opportunities to search for and test standards of appreciation and judgment.

S 33. **Teachers' Course.** (Education S 33). Undergraduate and graduate; credit two hours. Daily except Sat., 12. GS 156. Dr. JEWETT.

The objectives in the teaching of oral and written composition; the problem of secondary-school grammar; how to teach it; methods of teaching oral and written composition. The objectives in teaching literature; differentiated techniques for appreciation and information; individual reading problems.

S 35. **Literary Criticism.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. GS 156. Associate Professor SALE.

A study of certain modern critical theories of criticism, accompanied with practice in critical writing.

S 38. **Elizabethan Literature.** Undergraduate and graduate; credit two hours. Daily except Sat., 12. GS 162. Associate Professor NUNGEZER.

Studies in non-dramatic literature: Spenser, Daniel, Drayton, Shakespeare, Bacon, and Burton.



**S 301. Special Topics for Investigation.** For graduate students who wish to supplement courses described above or who are prepared to pursue independently of formal courses advanced study under the direction of one or more members of the staff. Credit varies with the nature and the amount of the work done. Such students may write to Professor MONROE or consult him at the opening of the Session.

## FRENCH

**S 4. Reading of French.** Undergraduate; credit two hours. Daily except Sat., 10. GS 281. Mr. BREUNIG.

Prerequisite, two years of college French, or three years of high-school French. Rapid reading of standard French authors.

**S 5. Written and Spoken French.** Undergraduate; credit two hours. Daily except Sat., 9. GS 283. Mr. BREUNIG.

Prerequisite, two years of college French, or three years of high-school French. Practice in oral and written French, with a review of grammar.

**S 9. Advanced Written and Spoken French.** Undergraduate and graduate; credit two hours. Daily except Sat., 12. GS 277. Assistant Professor THÉNAUD.

Prerequisite, French S 5 or its equivalent. Designed especially for teachers and prospective teachers. Translation into French; discussion of important points of syntax; theme writing; oral exercise. Especially recommended to candidates for the examination for the approval of Oral Credit in New York State. The course is conducted in French.

**S 20. Molière.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. GS 281. Professor BISHOP.

Prerequisite, French S 4 or its equivalent. Lectures outside reading, and reports. The course is conducted in English.

**S 30. La Comédie au 19e Siècle.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. GS 277. Assistant Professor THÉNAUD.

Prerequisite, French S 4 and S 5 or their equivalent. Lectures, outside reading, and reports. The course is conducted in French.

**S 47. French Seminary.** Graduate; credit two hours. Daily except Sat., 9. *French Seminary Room, Library.* Professor BISHOP.

Discussion of a special topic in the field of French literature. The course is designed to give an introduction to methods and materials of literary research. Especially for graduate students.

**French Conversation.** Tables for informal conversation, under supervision of the instructing staff, will be reserved in *Willard Straight Cafeteria*, from 10 to 12 daily.

## GERMAN

**S 1. First Year German.** Grammar, reading, oral training, composition. Undergraduate; credit four hours. Twice daily except Sat., 8 and 12. GS 183. Professor BOESCHE. Entrance credit, one unit.

After successfully completing this course, students can, by supplementary reading during the summer, prepare themselves for the College Board entrance examination in second year German.

**S 3. Third Year German.** Reading, grammar, composition, oral training. Undergraduate; credit four hours. Twice daily except Sat., 8 and 12. GS 177. Assistant Professor LANGE. Entrance credit, one unit (third unit).

Prerequisite, two years of high school German or the equivalent.

**S 6. Advanced Practical Course in German Grammar.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. GS 177. Professor BOESCHE.

For teachers and advanced students. A presentation of the chief problems of German grammar, such as the auxiliary use of *haben* and *sein*; the use of the subjunctive; moods and tenses in indirect discourse; separable and inseparable verbs; the order of words; the use of cases; etc. Historical explanations of modern conditions will be given but no knowledge of the earlier periods of the German language will be required.

**S 8. German Literature from Goethe to the Present.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. GS 177. Assistant Professor LANGE.

Lectures in English on the main currents of German Literature from 1800 to the present with reference to the background of European culture. Some knowledge of German is desirable. A number of texts will be read in the original or in available translations.

**German Lectures.** Lectures or interpretative readings in German will be given by members of the department on Wednesday evenings at 8 o'clock in GS 190.

### LATIN

The work of the Summer Session in the field of Latin study is intended primarily for actual and prospective teachers of the subject in the secondary schools.

A series of advanced courses is offered for those who by their undergraduate training are qualified to enter the Graduate School, or to continue their work therein, as candidates for the degree Master of Arts. Those teachers who by previous training and experience are similarly prepared to pursue courses in Latin on a graduate level will be admitted to the work of the Summer Session without registration in the Graduate School.

Prospective students in the 1941 Summer Session are invited to correspond with Professor HARRY CAPLAN, Goldwin Smith Hall, Ithaca, N. Y., concerning the nature and the scope of the work in Latin. Those who wish to begin their candidacy for the degree Master of Arts should forward to the office of the Graduate School, on or before June 15, such credentials of undergraduate work leading to the degree of A.B. as will entitle them to admission to the Graduate School.

**S 1. Teachers' Course.** Graduate; credit two hours. Daily except Sat., 9. GS 124. Professor CAPLAN.

Cicero as rhetorician and speaker. The speeches of Cicero ordinarily read in the secondary schools will be studied from the point of view of Cicero's own theory of public speaking. For teachers of high school Latin and for graduate students.

**S 2. Readings in Post-Augustan Literature.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. GS 124. Professor CAPLAN.

**S 4. Theses and Informal Work.** Graduate; credit by arrangement; total credit for thesis will not exceed six hours. Professor CAPLAN.

Direction in the preparation of theses by candidates for the Master's degree, and in the investigation of special problems which arise in connection with the work of the individual teachers.

### SPANISH

**S 1. Elementary Course.** Undergraduate; credit four hours. Entrance credit, one unit. Twice daily except Sat., 8 and 12. GS 281. Professor DALE.

The fundamentals of the language, oral and written. Reading of simple texts.

**S 50. Supervision of Theses.** By appointment with Professor DALE. GS 271.

### CHINESE AND JAPANESE

A CHINESE AND JAPANESE LANGUAGE INSTITUTE, sponsored by the Committees on Chinese and Japanese Studies of the American Council of Learned Societies, offers the following courses in cooperation with the Summer Session. These courses will begin on June 23 and end on August 15. Admission to the courses is by special application, and all correspondence with regard to them should be addressed to Dr. KNIGHT BIGGERSTAFF, Secretary, Boardman Hall, Cornell University.

#### CHINESE

- S 1. Chinese for Beginners. (Modern Mandarin).** Assistant Professor KENNEDY.
- S 2. Advanced (Ancient) Chinese.** Assistant Professor KENNEDY.

#### JAPANESE

- S 1. Elementary Japanese.** Dr. REISCHAUER.

### PUBLIC SPEAKING, SPEECH, DRAMA AND THEATRE

Students may confer either with the departmental representatives in Barton Hall, or with the individual instructors, who will be in their offices both on registration day and on the first day of instruction. For information about advanced work in Speech Training and Phonetics, consult Mr. THOMAS, GS 23; in Rhetoric and Public Speaking, Mr. WICHELS, GS 233, or Mr. WAGNER, GS 235; in Drama and the Theatre, Mr. DRUMMOND, GS 244, or Mr. STANTON, GS 239.

## PUBLIC SPEAKING

**S 1. Public Speaking.** Undergraduate; credit two hours. Daily except Sat., 11. *GS 21.* Associate Professor WAGNER.

Practice in speech-making, on topics of current interest. Methods of preparation and delivery studied in relation to practice; class discussions; conferences. Regular students passing the course are admitted to Public Speaking 2 and 12.

Enrollment will be limited; students must apply on registration day to the Departmental representatives in Barton Hall.

**S 14. Current Events and Public Opinion.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *GS 234.* Professor WICHELS.

Current controversies on American problems studied in the light of modern theories of public discussion, mass persuasion, and opinion control. Lectures and class discussions.

**[S 20. Theories of Public Address.** Credit two hours. Associate Professor WAGNER. Not given in 1941.]

**[S 21. History of Public Address.** Credit two hours. Professor WICHELS. Not given in 1941.]

**S 22. Rhetorical Criticism.** Graduate; credit two hours. Daily except Sat., 9. *GS 236.* Associate Professor WAGNER.

The principles of criticism applied to selected speeches, chiefly British and American. Reports and discussions.

**S 28. The Teaching of Speech in Secondary Schools.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *GS 234.* Professor WICHELS.

A study of outstanding problems in the teaching of speech, with emphasis on oral English and public speaking; aims, methods and materials, organization of courses and of activities; recent reports, syllabuses, and experiments in their bearing on classroom procedure.

## SPEECH IMPROVEMENT AND PHONETICS

**S 32. Teachers' Course in Phonetics and Speech Training.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. *GS 21.* Mr. HARDY.

A study of English phonetics, pronunciation, and the improvement of speech; primarily for secondary and elementary school teachers.

**[S 33. Regional and Historical Phonetics.** Credit two hours. Associate Professor THOMAS. Not given in 1941.]

**[S 34. Principles of Phonetics.** Credit two hours. Associate Professor THOMAS. Not given in 1941.]

**S 36. Principles of Speech Correction.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. *GS 26.* Associate Professor THOMAS.

Principles governing change of speech habits; causes, classification, and diagnosis of defects; function and organization of the clinic.

**[S 36a. Methods of Speech Correction.** (For Articulatory Defects.) Credit two hours. Associate Professor THOMAS. Not given in 1941.]

**S 36b. Methods of Speech Correction.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *GS 21.* Associate Professor THOMAS.

Analysis and treatment of stuttering, cleft-palate speech, and other pathological defects.

**S 200. Theses and Special Problems.** Graduate; credit two or more hours. Hours to be arranged. In registering for this course the name of the professor with whom the work is to be done must be stated.

For further information consult Professor THOMAS, WAGNER, or WICHELS.

**Speech Clinic.** No credit. For students working under the direction of the department. Associate Professor THOMAS and Mrs. ARLT, *GS 23* and *25*. By appointment.

The courses required for the degree of Master of Arts in Public Speaking and Speech Training are offered through a rotation of courses in a minimum of five summers. Candidates will take, or offer suitable equivalents for S 1, S 2, and S 10; six hours in each of the following four divisions: Rhetoric and Public Speaking, S 14, S 20, S 21, S 22, S 28; Speech Improvement and Phonetics, S 32, S 33, S 34, S 36, S 36a, S 36b; Dramatic Production, S 41, S 42, S 44, S 45, S 45a, S 48, S 66, S 90; electives in English, History, Government, Sociology, Psychology. In addition, each candidate will offer two hours in one of the three departmental divisions, and during the final summer will register in S 200 for the writing of a thesis or extended essay.

### DRAMA AND THE THEATRE

**S 41. Dramatic Production.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *Stage Laboratory, Morse.* Associate Professor STANTON.

For upperclassmen and graduates. Theory of stage direction; fundamentals of theatrical mounting; survey of practical phases of production. Prerequisite for further graduate work in Dramatic Production.

**S 42. Dramatic Interpretation and Acting.** Undergraduate and graduate; credit two hours. M W F, 2-4. *GS B.* Assistant Professor CURVIN.

A practice course in oral interpretation, pantomime, acting, and group rehearsal.

**S 43. High School Play Production.** Undergraduate and graduate. Daily except Sat., 10. *GS 143.* Assistant Professor ALBRIGHT.

Designed for secondary school teachers with limited training in dramatics. A survey of principles of play selection and presentation; lecture-demonstrations; classroom practice in direction and rehearsal.

**S 44. Advanced Dramatic Interpretation.** Undergraduate and graduate; credit two hours. By assignment. Associate Professor STANTON.

Specific assignments in the presentation and production of plays, for those who have been with the department for at least one summer and have taken S 42.

**S 45. Stagecraft and Stage Lighting.** Credit two hours. Associate Professor STANTON. Not given in 1941.]

**S 45a. Stage Lighting.** Credit two hours. Associate Professor STANTON. Not given in 1941.]

**S 48. History of the Theatre.** Undergraduate and graduate; credit two hours. Daily except Sat., 12. *GS 242.* Professor DRUMMOND.

Lectures on the development of the art of the theatre, with particular reference to the period theatres and theatrical styles which influence modern stage presentation; complementary to a textbook and to individual reports.

**S 49. Playwriting.** Credit two hours. Professor DRUMMOND. Not given in 1941.]

**S 66. Dramatic Art.** Credit two hours. Professor DRUMMOND. Not given in 1941.]

**S 90. Technical Theatre Practice.** Undergraduate and graduate; credit two hours. Hours to be arranged. Open by consent of instructor. Mr. TRAPIDO. Register in *GS 25.*

Technical practice coordinated with the regular productions of the Summer Theatre; readings on the techniques involved.

**S 95. Stage Make-up.** Credit two hours. Not given in 1941.]

**S 300. Special Problems and Theses.** Graduate; credit two or more hours. Hours to be arranged. On registering for this course the name of the professor with whom the work is to be taken must be stated.

Required of regularly registered graduates working on theses. Open to other graduates prepared for independent study of special topics in the field of drama and the theatre. For further information consult Professor DRUMMOND or Associate Professor STANTON.

**Modern Drama.** See English S 17.

**Dramatic Literature.** See English S 31.

**Shakespeare.** See English S 20.

The courses required for the degree of Master of Arts in dramatic production are offered through a rotation of courses in a minimum of five summers. Candidates will take, or offer suitable equivalents for S 1, S 10, S 41; in Drama and Theatre six hours from S 45, S 45a, S 48, S 66; eight hours from S 42, S 44, S 45a, S 90, S 95; in Dramatic Literature, English S 17, English S 31; in Speech Improvement and Phonetics, six hours from S 32, S 33, S 34, S 36, S 36a, S 36b; in Rhetoric and Public Speaking, four hours; and during the final summer will register in S 300 for the writing of a thesis or extended essay based on one of the advanced courses.

## ECONOMICS, GOVERNMENT, HISTORY, AND SOCIOLOGY

### ECONOMICS

The following courses are designed to meet the needs of three classes of students in the Summer Session: (1) those desiring regular credit for general economics; (2) students with special interests in economic subjects; (3) students seeking broad preparation for the teaching of economics in the secondary schools.

**S 5. Recent Social Trends.** Undergraduate and graduate; credit two hours. Daily except Sat., 8. *GS 264.* Dr. ADAMS.

A survey of the more important trends exhibited in the economic system during recent years and their impact upon economic stability.

**S 32. Public Control of Business.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *GS 264*. Professor HOMAN.

After a somewhat general view of the problems of public control, the course will be primarily devoted to (1) the regulation of public utilities and (2) the policy of the federal government in relation to the electricity industry.

**S 80. Economics and War.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. *GS 264*. Dr. ADAMS.

A study of the impact of war upon the economic system and the problem of mobilizing industrial resources.

**A 81. Economics of Enterprise.** Undergraduate and graduate; credit two hours. Professor KENDRICK. See under Agricultural Economics and Farm Management.

**S 82. The Distribution of Income.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *GS 264*. Professor HOMAN.

The course will fall into three parts, (1) The theory of distribution, (2) the statistics of distribution, and (3) social problems related to distribution involving questions of economic efficiency and distributive justice.

**A 138. Taxation.** Undergraduate and graduate; credit two hours. Professor KENDRICK. See under Agricultural Economics and Farm Management.

**S 3A31. First Course in Accounting.** For description, see under Administrative Engineering.

## GOVERNMENT

**S 6. Problems in American Politics.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. *Boardman 121*. Professor BARCLAY.

The political party as part of the process of government; party organization and methods; agrarian and labor politics; the relation of parties, public opinion, and economic groups.

**S 35. Legislatures and Legislation.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *Boardman 121*. Professor BARCLAY.

Composition, organization, and functions of representative assemblies; legislative procedure for control purposes and for law making; the legislature as arbiter between conflicting interests; direct legislation.

## HISTORY

**S 9. The British Empire in World Affairs: 1600 to the Present.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. *Boardman 122*. Professor MARCHAM.

The chief topics considered will be: why Great Britain became an imperial power; how growth of an empire influenced the government and economic life of the mother country; how the empire has been governed; what significance the British Empire has among the competing imperialisms of the Modern World.

**S 10. Democracy in Britain during the 19th and 20th Centuries.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *Boardman 122*. Professor MARCHAM.

A study of democratic practices and ideas in Great Britain during the last century. Democracy will be treated as a vital force in contemporary civilization and particular attention will be given to the technique of studying and appraising the characteristics contributing to its preservation in modern Britain.

**S 15. American History: 1783-1850.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *Boardman 121*. Professor SYDNOR.

A general survey of the political and social development of the United States from its founding until the Compromise of 1850.

**S 16. The Old South.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. *Boardman 322*. Professor SYDNOR.

An analysis of the economic and social forces that made the South a distinctive section of the United States before 1860. Among the topics considered are slavery, agriculture, transportation, education, religion, and regional customs and attitudes.

**S 40. France in the 17th and 18th Centuries.** Undergraduate and graduate; credit two hours. Daily except Sat., 8. *Boardman 322*. Associate Professor HARRIS.

The growth of the French state; the economic and social influences; character of the monarchy at its height; the decline of the monarchy; the reform movements.

**S 47. Europe in the 20th Century.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *Boardman 322*. Associate Professor HARRIS.



Economic, social, and political background of the Great War; the origins and course of the war; the peace and its consequences; problems of international collaboration; the European revolutions and the search for a new order.

### SOCIOLOGY: RURAL SOCIOLOGY

A 1. **General Sociology.** Undergraduate; credit two hours. Daily except Sat., 8. *Warren 325.* Professor ANDERSON.

The analysis and utilization of concepts and principles of sociology, with special emphasis on groups, institutions, social processes, and social change.

A 10. **The Family.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *GS 225.* Professor COLE.

Theories of family origin, background of the American family, social change and its impact upon family functions, family status under representative social and political systems, legal aspect of marriage, marital disorganization, family relationships, conservation of the family, and the future of the family system.

A 20. **Social Problems.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *Warren 340.* Professor ANDERSON.

A study of the maladjustments in society, such as crime, poverty, sickness, old age, accident, degeneracy, insanity, class and racial struggles, and consideration of how society attempts to deal with these problems.

A 111. **Rural Community Organization.** Undergraduate and graduate; credit two hours. Daily except Sat., 8. *Warren 302.* Assistant Professor POLSON.

A consideration of the structure and functioning of rural community organizations; the organization of the rural community; and a review of group work techniques, such as local leadership development, program planning, use of group activities for informal teaching, the use of committees, and inter-organization cooperation. A course for extension workers and school teachers.

A 124. **Social Case Work.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. *Warren 340.* Miss STRODE.

An introductory study of the theory and practice of social case work as used in public and private welfare agencies, court and probation work, and the family relations of school and church. Designed for prospective social workers, and of value to extension workers and teachers.

A 129. **Educational Sociology.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *Plant Science 107.* Professor COLE.

Cultural forces conditioning the education and learning of man, the roles of social institutions in education and learning, the impact of contemporary social trends upon education, sociological aspects of educational planning and the role of education in social change, social control and social progress. (Also listed under Education, p. 38).

### SPECIAL COURSES FOR RURAL WELFARE WORKERS

The following special courses for Rural Welfare Workers and Farm Security Administration Supervisors will be given during the first three weeks, July 7-25.

W. 10. The Rural Family.

W. 111. Rural Community Organization.

W. 124. Principles and Methods of Rural Case Work.

W. 208. Seminar for Welfare Workers.

W. 209. Seminar for Farm Security Men Supervisors.

W. 210. Seminar for Farm Security Women Supervisors.

These courses are not open to regular students of the Summer Session. A special announcement concerning them may be had upon application.

## EDUCATION

### EDUCATION: RURAL EDUCATION

#### THE SCHOOL OF EDUCATION

#### TYPES OF PROFESSIONAL PROGRAMS LEADING TO STATE CERTIFICATION

For several types of professional workers, programs have been so planned that it is possible for the student to secure a Master's degree while completing requirements for

a state certificate. Among the professional positions for which programs have been prepared are these:

Teachers of academic subjects in the secondary school, of agriculture, home economics, industrial arts, industrial education, nature study and of atypical children.  
 Supervisors of agriculture, home economics, industrial education, and industrial arts.  
 Guidance counselors  
 Principles of elementary or secondary schools  
 Principals of vocational or technical high schools  
 Directors of vocational education  
 Supervisors of elementary school grades  
 Supervisors of attendance  
 Supervising principals of small village central or consolidated schools  
 Superintendents of large village or city school systems  
 District superintendents, county superintendents or similar leaders in rural education.

For information regarding any of these programs the student who is already matriculated in the Graduate School of Cornell University should consult the Chairman of his Special Committee. Others should write to the Director of the School of Education.

Opportunities for specialization in the various phases of Education are, of course, offered for those not concerned with certification.

#### SPECIAL CONFERENCES

The fourth annual Conference open to city supervisors of the United States and Canada will be offered by the School of Education in cooperation with the College of Home Economics at Cornell, the New York State Education Department and the U. S. Office of Education. The leader of the Conference will be from the staff of the Home Economics Education Service of the Federal Office. Conference activities will be focused upon common problems of city supervisors. Each supervisor is invited to select one classroom teacher who will attend the Conference for Teachers. No credit. Fee, \$5. Address applications to School of Education, Stone Hall.

#### EDUCATIONAL PSYCHOLOGY, MEASUREMENT, STATISTICS

**S 7. Mental Measurements.** Undergraduate and graduate; credit two or three hours. With consent of the instructor, this course may be taken without observations for two hours credit. Daily except Sat., 9. Observation hours to be arranged. GS 142. Professor FREEMAN.

Concepts of intelligence; individual and group tests of intelligence; principles underlying their construction and interpretation; use of tests in schools and other fields. Lectures, readings, and observations of individual testing.

**A 12. Psychology of Exceptional Children.** Graduate; with the consent of the instructor, qualified undergraduates may be admitted; credit two hours. Daily except Sat., 11. GS 242. Professor FREEMAN.

Designed to give a scientific understanding of children who deviate from the usual: the gifted, the feeble-minded, the delinquent, those having special abilities or disabilities, those having personality defects, and those having sensory and physical handicaps. Lectures, reading, and case studies. Students who have not had or are not now taking a course in mental measurements may be admitted only with approval of the instructor.

**A 116. Child Psychology.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. Plant Science 107. Dr. GARDNER.

Students who have not had a course in educational psychology admitted only on approval of instructor.

**A 212. Psychology of Learning.** Graduate; credit two hours. M W F, 7:30-8:50 a.m. Stone 309. Professor KRUSE. For students who have had at least an elementary course in psychology and who want to extend their study of the learning process.

**A 215. Psychology of Adolescence.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. Warren 125. Professor WINSOR.

A study of the behavior of children during the adolescent stage of development.

**A 251. Educational Measurement.** Graduate; credit two hours. Daily except Sat., 8. Warren 240. Assistant Professor BAYNE.

The use and interpretation of tests by teachers and school officers as aids in the improvement of instruction.

## EDUCATIONAL METHOD

**S 4. Method in the Changing Secondary School.** Graduate; credit two hours. Daily except Sat., 11. *GS 134.* Assistant Professor HULSE.

A critical study of the theory of method through the analysis of teaching objectives, types of subject-matter, and basic teaching procedures. Current plans and techniques of teaching will receive considerable attention in order to determine their characteristic values. Familiarity with the secondary-school pupil through experience is assumed.

**S 33. The Teaching of English in Secondary Schools.** Undergraduate and graduate; credit two hours. Daily except Sat., 12. *GS 156.* Dr. JEWETT.

The objectives in the teaching of oral and written composition; the problem of secondary-school grammar; how to teach it; methods of teaching oral and written composition. The objectives in teaching literature; differentiated techniques for appreciation and information; individual reading problems.

**A 122a. Observation of Child Activity Education.** No credit. Daily except Sat., 9-11:30, and group conferences each Thursday from 2-3:30. *Comstock 17 and 245.* Professor MOORE, Miss KNAPP, and Miss MOEN.

Two teachers will give demonstration work in grades one and two, and five and six during the Summer Session period. These demonstrations will illustrate two conceptions of an activity program in the elementary school. So far as facilities permit, Summer Session students will be allowed to observe these classes. The group conferences will be held for the purpose of discussing and interpreting the teaching observed.

**A 128. The Teaching of Natural History in the Field.** Credit three hours. Lecture, M, 12. *Fernow 8.* Field work, F, 1:40 p.m. to Sat., 8 p.m. Professors PALMER, WRIGHT, ALLEN, PETRY, PALM, and GUISE; Miss GORDON, and Mr. TRAINER.

This course acquaints experienced science teachers with methods of field studies suitable for public school teaching and work in teacher-training institutions. Trips combine ecological sites with the observation of methods used by botanists, zoologists, general ecologists, entomologists, foresters, and astronomers. Practice is given in field teaching under supervision. Students live in the field from Friday noon to Saturday night. Advance registration expected. Enrollment limited to twenty. Membership of the class fixed tentatively June 1. Applicants should file with Professor E. L. PALMER detailed records of teaching experience and training in science. Students furnish bedding, pup tents, or sleeping bags. Meals and transportation, supplied at cost, which for six weeks will be \$20. This is to be paid in advance. Open only to those taking work for credit. Provision can be made for all women students to live in the same house.

**A 129. Teaching Adaptations for the Atypical Child.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. *E. Roberts 223.* Dr. GARDNER.

Consideration, with demonstrations, of special techniques of teaching adapted to the needs of atypical children.

**A 134a. Special Education for Out-of-School Youth and Adults.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. *Stone 309.* Assistant Professor HOSKINS.

Designed for teachers of vocational agriculture and other leaders of older youth in rural areas. The consideration of the objectives, development and trends of education for out-of-school groups. Field studies will be made in connection with Seminar 250.

**E 134b. Adult Homemaking Education.** (Home Economics E 120s. Leadership in Home Economics.) Undergraduate and graduate; credit three hours. Discussion, M W F, 10-12. *Martha Van Rensselaer 121.* Acting Professor POLLARD.

For extension workers, home economics teachers, and others interested in leadership in homemaking education. Fee, \$3; estimated cost of trips, \$10.

**A 142x. Project Development Laboratory in Industrial Arts.** Undergraduate and graduate; credit two hours. Lectures, M W F, 1:30-4. *Senior High School Laboratory 13.* Mr. AHR.

Study of the development of projects for use in industrial arts instruction, with special emphasis on the creative aspects of project development. Opportunity will be provided for designing new projects and making up sample projects in the laboratory workshop. Laboratory fee, \$2.

**S 143. The Organization and Teaching of Technical Subjects.** Undergraduate and graduate.

a, b. Curriculum construction and development of instructional materials for national defense training programs in industrial and technical high schools. Credit four to six hours. Daily except Sat., 1:30-4. *Seminar Room, Fernow.* Mr. WALLENDORF.

Designed primarily for graduate students in industrial and technical education who have had some experience in the development of instructional materials. Deals with

analysis of national defense industries for occupational training content; the organization of courses of study of pre-employment and trade extension type; and the preparation of instruction sheets and other aids to instruction. Each student should provide himself with drawing equipment.

c. Special methods applicable to teaching technical and related subjects in drawing room, shop, laboratory and classroom. Credit two hours. Daily except Sat., 9. *Rockefeller* 110. Mr. GRAY.

A 209. **The Nature Movement and Its Makers.** Credit two hours. Daily except Sat., 9. *Fernow* 8. Professor PALMER.

A survey of the present programs in elementary science and nature study interpreted in terms of the programs and leadership of the past with an indication of possible future developments.

S 226d. **The Teaching of Chemistry and Physics in Secondary Schools.** Credit two hours. Daily except Saturday, 9. *Baker* 107. Assistant Professor JOHNSON.

Prerequisite: college physics and chemistry sufficient for a certificate to teach the physical sciences in secondary schools.

A review of the subject matter appropriate for high school teaching, together with a discussion of plans for organization and presentation suitable for achieving worthy objectives. Much of the discussion will relate to demonstrations, examinations and industrial tours. Personal conferences and special laboratory facilities may be arranged for an attack on the individual teacher's problems. Teachers are advised to bring with them their high school textbook and other suggestions for teaching.

A 232. **Special Problems in the Teaching of Agriculture in the Secondary School.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *Seminar Room, Fernow*. Assistant Professor OLNEY.

Designed for teachers of vocational agriculture and other leaders in vocational education. Special attention will be given to supervised practice programs as they affect vocational agriculture in the public schools. Field studies will be made in connection with Seminar 250.

A 234. **Seminar in Educational Research.** Graduate; credit two to four hours. Daily except Sat., 9. *Warren* 101. Dr. REED.

Planned (1) to assist graduate students in acquiring research techniques, and to afford practice in their application to the preparation of dissertations and the prosecution of research in any field of education, (2) to indicate opportunities, methods, and materials for the cultivation of "research attitudes" in dealing with problems among public school and college students and among other organized groups.

A 236. **Creative Procedures in the Teaching of Home Economics in the Secondary School.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *Warren* 240. Professor BINZEL.

Designed to develop creative ideals and procedures for building, teaching and appraising home economics programs for school and community.

A 243. **Problems in the Administration of Industrial and Technical Education.** Graduate; credit two hours. Daily except Sat., 11. *Plant Science* 141. Professor EMERSON.

A course in school administration dealing with the responsibilities of the principal and administrative assistants in industrial and technical high schools, and of the city director of vocational education.

A 243b. **Seminar in Vocational, Industrial, and Technical Education.** Graduate; credit two hours. Daily except Sat., 9. *Plant Science* 107. Professor EMERSON.

A study of current problems in vocational, industrial, and technical education, with special reference to programs of training for national defense.

A 248. **Preparation of Teachers of Home Economics for Secondary Schools.** Graduate; credit two hours. Daily except Sat., 9. *Warren* 240. Professor BINZEL.

Planned for cooperating teachers participating in teacher education programs and for experienced teachers who desire to prepare for positions in the field of teacher education. The course deals with the nature, purpose, organization and administration of student teaching; the functions of the cooperating teacher; induction of student teachers into the total school program and into community activities; critical analysis and appraisal of directed observations, participation and teaching; cooperating teacher and student teacher conferences.

#### ADMINISTRATION, SUPERVISION, CURRICULUM

A 5. **High School Administration.** Undergraduate and graduate; credit two hours. T Th, 1:40-4. *GS* 221. Professor JORDAN.



A course in the techniques of high school administration which includes a critical study of the principal and principalship, principles of high school administration, staff organization, the school day, class size, and teachers' loads, schedule-making, principal's office, filing systems, records and reports.

**S 11. Extra-Classroom Activities.** Undergraduate and graduate; credit two hours. Daily except Sat., 8. *GS 256*. Professor JORDAN.

A study of the place extra-classroom activities should assume in the school program. General principles involved, with special attention to athletics, dramatics, publications, school finance, music, debate, and school clubs. Individual problems of the class will have special attention.

**A 242a. Seminar in Industrial Arts Education.** Graduate; credit two hours. Daily except Sat., 10. *Warren 240*. Mr. AHR.

A study of recent developments in methods of teaching industrial arts.

**S 243a. Supervision of Industrial and Technical Education.** Graduate; credit two hours. Daily except Sat., 10. *Rockefeller 110*. Mr. GRAY.

Principles and practices in the improvement of instruction in all phases of industrial and technical high school courses. This course is correlated with S 143c.

**A 249. Seminar in Home Economics Education.** Graduate; credit two hours for each sub-unit. Designed primarily for graduate students who have had experience as home economics educators in schools, colleges, extension service, business, etc. Arrangements will be made for students to work on their individual problems. Courses in philosophy and principles of education, psychology, guidance, curriculum, and measurement are recommended as prerequisite or parallel. Students will need to consult the instructor before registering.

(a. Curriculum Development in Home Economics. Not offered in 1941. See Workshop 276c.)

b. Service and Research Studies. Daily except Sat., 9. *Seminar Room, Fernow*. Professor THURSTON.

**A 250. Seminar in Agricultural Education.** Graduate; credit two hours. Daily except Sat., 8. *E. Roberts 223*. Professor STEWART and others.

Open only to teachers or persons responsible for supervision or teacher training who have had previous graduate studies in agricultural education. The theme of the seminar will be the evaluation of departments of vocational agriculture, based upon the recent national survey. The seminar will be integrated with Courses 134a, 232, and 276c.

**A 261. The Administration of Rural Schools.** Graduate; credit two hours. Daily except Sat., 8. *Roberts 392*. Professor BUTTERWORTH.

A general course in school administration dealing especially with the problems of village and central schools. Individual attention will be given to those who are working in larger schools.

**A 262a. School Finance.** Credit two hours. Daily except Sat., 8. *Plant Science 141*. Professor BROWNELL.

Typical problems: how local school funds are levied, collected and disbursed; cost accounting; budget making; bonding; sources of state funds and their distribution.

Particular attention will be given to two current problems in New York State educational finance: the so-called seventy-five per cent bill and state aid. Members of the class are urged to bring with them financial data regarding their schools.

**A 262e. The Administration of Attendance.** Undergraduate and graduate; credit two hours. Daily except Sat., 8. *Warren 125*. Mr. MOSHER.

Underlying intent and purpose of child welfare and education statutes to insure and preserve educational opportunity and school training for children; a study of procedures by which school, home and community influences and resources may, with prompt co-operation of persons concerned, function effectively, including the development of sustaining home conditions, the establishment of needed health measures and consideration of employment problems.

This course, together with A 12 and A 124 (Rural Sociology), may be taken to satisfy the special requirements for certification of supervisors of attendance.

**A 263. Procedures and Techniques in Supervision.** Graduate; credit two hours. Daily except Sat., 10. *Seminar Room, Fernow*. Professor MOORE.

Designed for superintendents, supervisors, and principals. Inexperienced students admitted only by permission. A consideration of the nature and purpose of supervision; the improvement of the learning-teaching process; skill in observations; analysis of methods; relationships between general and specific objectives; selection, analysis, and



organization of subject matter; measuring and testing results; assisting teachers in professional growth.

A 264. **Systematic Study of School Administrative Problems.** Graduate; credit two hours. Daily except Sat., 11. *E. Roberts* 223. Professor BROWNELL.

Typical problems; development of a salary schedule, revising graduation requirements, a building survey, reports to parents, personnel appraisal policies, improvement of spelling, reorganization of business records and forms. A workshop seminar in which members will carry on individually or cooperatively systematic study of administrative problems and prepare reports on these problems for information and action of school board, staff, and other groups.

A 267c. **Vocational Education in the Public Schools.** Graduate; credit two hours. Daily except Sat., 10. *E. Roberts* 223. Professor STEWART, assisted by Professors BINZEL and EMERSON, and by representatives of the State Education Department.

Open to graduate students with teaching experience. Designed for advanced students and administrative officers concerned with the general problems of vocational education, who desire a basic understanding of the vocational program; the place of the industrial, home economic, agricultural and distributive phases of vocational education in a comprehensive program of public education; the more important problems involved in the organization and integration of vocational courses.

A 276. **Principles of Curriculum Building.** Graduate; credit two hours. Daily except Sat., 11. *Plant Science* 143. Professor FERRISS.

A consideration of major problems, principles and techniques in determining objectives and curriculum content and organization in elementary and secondary schools in the light of modern educational theory and practice. Selected examples of recent curriculum building will be critically examined.

B 276c. **Workshop.** Graduate; credit four to six hours. First meeting, July 8 at 1:40, Warren 225. T Th, 1:40-4:15, general meetings. Other hours to be arranged. Prerequisite, A 276, its equivalent, parallel study, or satisfactory experience.

General Coordinator and Mathematics, Assistant Professor HULSE.

Elementary Education, Professor MOORE.

Home Economics, Professor THURSTON.

Agriculture, Assistant Professor HOSKINS.

Social Studies, Associate Professor ANDERSON.

English, Mr. GROMMON.

Science, Assistant Professor JOHNSON.

The Workshop will provide an opportunity for experienced teachers and supervisors to work on curriculum problems and related projects under the direct supervision of members of the staff. The intensive study of a problem significant to the student and participation in group conferences with workers of similar interests furnish an unusual experience for the teacher and supervisor. There will be weekly conferences, also, attended by all students and members of the Workshop staff, for the consideration of common problems. Attention will be focused this summer on *ways and means of making effective in the life of the pupil, through the various services of the school, the principles and processes of democratic living*. It is expected that the entire faculty of a central school will attend the Workshop and operate as a unit in the reorganization of its curriculum. Thus members of the Workshop may observe at first hand a joint effort to relate the curriculum of a school to the larger community of which it is a part.

Since the number of students that can be accommodated will be limited, interested teachers and supervisors should make application either to Professor Anderson or to the appropriate staff member as listed above, stating the field and grade level in which they are interested, and the nature of the problem upon which they wish to work. To be assured of a place in the Workshop applications should be made not later than June 15.

#### GUIDANCE

A 28. **Educational and Vocational Guidance.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. Warren 225. Dr. BAILEY.

This is an information course. It is designed to familiarize students with (1) the history, principles and place of guidance in a democratic society, (2) methods of collecting, classifying, interpreting and disseminating various types of information essential to a successful guidance program (education, occupational, community, etc.), (3) placement procedures and employment supervision.

A 32. **Practicum in Guidance.** Undergraduate and graduate; credit two hours. Daily except Sat., 1:30-3. *E. Roberts 223.* Dr. BAILEY.

*Part I*—Methods of collecting, recording and utilizing information about the individual. (Techniques of the personal interview, case study, and various types of conferences and homeroom programs designed for guidance service.)

*Part II*—A directed and cooperative attack on the problems actually encountered by those enrolled in the course. Analytical, diagnostic, and conference techniques will be applied to actual and hypothetical cases, problems and situations. Students should bring case data and other information pertaining to their problems.

A 32a. **Research in Guidance and Personnel** (See 234).

A 217. **Use and Interpretation of Tests in Guidance.** Graduate; credit two hours. Daily except Sat., 8. *Warren 340.* Professor WINSOR.

This course deals with the development, use, interpretation, and significance of psychological measuring devices as a basis for analyzing the capacities, interests, and abilities of individuals seeking vocational guidance. A course in measurement is prerequisite.

#### PRINCIPLES AND HISTORY OF EDUCATION

A 130. **Social Foundations of Education.** Undergraduate and graduate; credit three hours. Daily except Sat., 8. *GS 225.* Associate Professor ANDERSON.

This course evaluates the school as a social institution and emphasizes the rôle the school must play in preserving American democracy.

A 281. **The Secondary School in Rural and Village Communities.** Graduate and undergraduate; credit two hours. Daily except Sat., 8. *Plant Science 143.* Professor FERRISS.

A course dealing with basic problems in the adaptation of modern secondary education to rural and village conditions. Among topics considered are: the scope and functions of secondary education, types of secondary school organization and their adaptation to rural and village conditions and needs; the organization and content of an adequate curriculum; pupil guidance, the extra-class program, services to the adults of the community, community relations, etc.

A 297. **Educational Sociology.** Credit two hours. Daily except Sat., 9. *Plant Science 143.* Professor COLE.

Cultural forces conditioning the education and learning of man, the rôles of social institutions in education and learning, the impact of contemporary social trends upon education, sociological aspects of educational planning and the rôle of education in social change, social control and social progress.

#### RESEARCH

B 300. **Research.** Graduate; credit as arranged. Members of the staff of the School of Education.

Students working on theses or other research projects may register for this course. The staff members concerned must be consulted before registration.

#### PHYSICAL EDUCATION

S 4. **Community Recreation.** Undergraduate; credit two hours. Daily except Sat., 9. *GS 164.* Professor YOUNG.

A practical course in the administration of playgrounds, community camps, industrial recreation and other types of group activity.

S 6. **Administration, Organization, and Supervision of Physical Education.** Undergraduate; credit two hours. Daily except Sat., 8. *GS 164.* Professor YOUNG.

Problems involved in the general administration, of (a) required physical education in secondary schools and colleges (b) extra and intramural activities.

S 12. **Body Mechanics.** Undergraduate; credit one hour. Daily except Sat., (men) 11, (women) 12. *Sage gymnasium.* Mrs. BAIRD.

Planned primarily for teachers who are interested in the development of body poise and carriage. Special attention is paid to weight problems and correction of posture faults, with aim of establishing intelligent self direction in health practices.

S 14. **Folk Dancing.** Undergraduate; credit one hour. For men and women. Daily except Sat., 2. *Sage gymnasium.* Mrs. BAIRD.

Representative folk dances from all countries, ranging from simple dances to dances of moderate difficulty adapted to school and recreational groups.

S 16. **Teaching Methods in Aquatics.** Undergraduate; credit one hour. M W F, 3. *Old Armory.* Mr. LITTLE.

Tested methods of teaching beginners to swim and dive. Coaching methods in competitive swimming. Theory and practice.

S 16a. **Swimming.** No credit. (Men) M W F, 2. (Women) Daily except Sat., 4. *Old Armory.* Mr. LITTLE.

Instruction in beginning, intermediate, and advanced swimming and diving. A special fee of ten dollars is charged for 15 hours of class instruction. Individual instruction (one or two persons) one dollar per lesson per person.

S 18. **Private Instruction in Tennis.** No credit. For men and women. Hours to be arranged. *Sage courts.* Mr. MURRAY. A special fee is charged, \$10 for ten lessons.

S 18a. **Tennis.** Undergraduate; credit one hour. For men and women. Daily except Sat., 3:30 and 4:30. *Risley courts.* Mr. DYE. Class instruction; registration limited to sixteen per hour.

S 19. **Badminton.** No credit. For men and women. Twice weekly, 4. *Balch athletic fields.* Mrs. BAIRD.

S 20. **Outdoor Recreational Activities.** No credit. For men and women. Daily except Sat., 3. Mrs. BAIRD.

Canoeing, horseback riding, bicycling, hiking, map reading, camp craft and camp cooking. (For details consult Mrs. BAIRD).

The following recreational activities are organized during Summer Session. Members of the faculty as well as all students are cordially invited to participate, and are urged to consult the bulletin board in the main lobby of Willard Straight Hall, and the weekly calendar for announcements.

**Recreational Folk Dancing.** Arranged by the Department of Physical Education and Willard Straight Hall. For men and women among the faculty and students. W, 5, *Recreation Room, Willard Straight Hall*; Th, 5, *Risley court yard*.

**Instruction in Social Dancing.** Arranged by the Department of Physical Education and Willard Straight Hall. T F, 7:15 p.m. *Recreation Room, Willard Straight Hall.* Fee, \$2.

**Tennis, Badminton and Golf Tournaments; Swimming Meet.** No great degree of skill is necessary for participation in these events. Those wishing to participate are asked to sign name, address and telephone number on the sports bulletin board in Willard Straight Hall during the first three days of the Summer Session. Further information may be obtained by calling Mrs. BAIRD, 3331, ext. 1152, between 10 and 11 a.m.

#### HEALTH EDUCATION

S 1. **The School Health Program.** Undergraduate and graduate; credit two hours, Daily except Sat., 8. *Boardman 121.* Dr. SMILEY.

Problems in the organization, administration, and operation of a modern school health program including: healthful school living; medical and dental supervision; health instruction; physical training.

S 2. **Mental and Physical Health Problems of the School Child.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. *Stimson 324.* Dr. EVANS.

A discussion of the common mental and physical disorders of the school child with suggestions for prevention and management.

S 3. **Mental Hygiene.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *Boardman 122.* Dr. DARLING.

The human being considered as a psychobiologic unit in a complex environment. Discussion of (1) general personality structure; (2) maladjustment factors functioning at different ages from infancy through life; (3) the more common maladjustment symptoms and mental illnesses and their prevention.

### PSYCHOLOGY AND BIOLOGICAL SCIENCES

#### BACTERIOLOGY

A 1. **General Bacteriology.** Undergraduate and graduate; credit two or four hours. Lectures, daily except Sat., 1:40. Laboratory, daily except Sat., 2:30-4:30. *Dairy 119.* Professor STARK.

An introductory course giving a general survey of the field of bacteriology, together with the fundamentals essential to further work in the subject. The morphology,

physiology, and classification of bacteria; the culture of micro-organisms, simple and differential staining, and general bacteriological technique; the bacteriology of soil, air, water, sewage, milk, and foods; the principles of immunity and the microbiology of disease. Laboratory fee, \$10, for those seeking four credit hours.

A 220. **Special Problems.** Credit and hours by arrangement. Professors SHERMAN and STARK.

Special problems in bacteriology may be elected by qualified students with the permission of the instructors.

## BIOLOGY

A 1. **General Biology.** Undergraduate; credit three hours. Lectures, laboratory work, and discussions, daily except Sat., 11-1. *Roberts* 392. Acting Assistant Professor HOOD.

Designed for the general student seeking a cultural background as well as for the prospective teacher; a course in biological fundamentals, dealing with the nature of life, the processes and activities of living organisms, heredity, evolution, etc. Laboratory fee, \$2.50.

## BOTANY

S 1a. **General Botany—Anatomy and Physiology.** Undergraduate; credit three hours. Equivalent to Botany 1, first term. Lectures, daily except Sat., 10. Laboratory and conferences, daily except Sat., 11-12:30. *Plant Science* 141, 242. Professor PETRY and Mr. WHITAKER.

The structures and life processes of the higher plants are examined in detail, with considerable attention to information necessary for more advanced or practical work with plants. Students taking this course may attend the field trips offered in connection with Botany A 1b. Laboratory fee, \$3.50.

A 1b. **General Botany—Morphology and Taxonomy.** Undergraduate; credit three hours. Equivalent to Botany 1, second term. May be taken in conjunction with Botany S 1a, or independently. Lectures, daily except Sat., 2. Laboratory, daily except Sat., 3-4:30. Three half-day field trips on Saturdays to be arranged. *Plant Science* 141, 262. Mr. FORD.

Representatives of the principal groups of plants are studied with a view to acquainting the student with the plant kingdom as a whole. The principal families of ferns and flowering plants are examined and practice in identification is given.

The field work is intended to afford to teachers and others first-hand knowledge of the commoner plants of all the great groups. Facilities for collecting plant materials for teaching or other purposes will be provided. Laboratory fee, \$3.50.

A 13. **Trees and Shrubs.** Undergraduate and graduate; credit two hours. Lecture, W, 8. *Plant Science* 107. Laboratory, two sections, M W, 2-5, and Th F, 2-5. *Plant Science* 240. Permission to register must be obtained from the instructor before registration is made. *Plant Science* 353. Professor MUENSCHER.

Intended for those who wish to know the woody plants in the field. The aim is to familiarize the student with the trees and shrubs of Central New York and to teach the main facts of structure, growth, habit, and distribution concerning them. An all day trip to the McLean Wild Life Preserve will be taken on a Saturday. Other trips will be arranged. Laboratory fee, \$1.50; deposit, \$3.

A 31. **Plant Physiology.** Undergraduate and graduate; credit four hours. Prerequisite, general botany or biology and elementary chemistry. Lectures, daily except Sat., 9. *Plant Science* 141. Laboratory, T W Th F, 10-1. *Plant Science* 227. Professor O. F. CURTIS.

This course is designed to acquaint the student with the important life processes of plants. Topics such as water-relations, photosynthesis, translocation, digestion, respiration, mineral nutrition, and growth relations are studied in some detail and particular emphasis is placed, both in laboratory and in classroom, on discussion of the principles and their applications to growing plants. Laboratory fee, \$4; deposit, \$3.

A 117. **Taxonomy of Vascular Plants.** Undergraduate and graduate; credit four hours. Prerequisite, course 1 or its equivalent. Lectures, M T W Th, 2. Laboratory, M T W Th, 3-6, F, 2-5. One or two all-day field trips will be arranged. *Plant Science* 211. Professor WIEGAND.

A study of the kinds of seed plants and ferns; their classification into genera, families, and orders; and field work on the local flora. Emphasis will be placed on wild plants, but the more common cultivated plants will have some attention. The course is planned



to follow course A 1 and to furnish an introduction to the knowledge of field botany and to the classification of the higher plants, in preparation for special work in various departments and as an aid in teaching. Instruction will be given in herbarium methods. Laboratory fee, \$4; deposit, \$5.

A 126. **Morphology of Vascular Plants.** Credit four hours. Prerequisite, course 1 or an equivalent and permission to register. Laboratory, M T Th F, 8-12. Hours for lectures to be arranged within these periods. *Plant Science* 228. Professor EAMES.

An advanced course in the comparative morphology and phylogeny of vascular plants. Laboratory fee, \$5.

A 145. **Special Problems with Plants.** Credit two or more hours. Hours to be arranged. In registering for this course the name of the professor with whom the work is to be taken must be stated.

Students sufficiently prepared may arrange for the study of some problem or special topic. Such work may lie in the fields of general or taxonomic botany, anatomy, comparative morphology, mycology, cytology, plant physiology, economic botany, paleobotany, plant pathology, or genetics. A member of the staff must supervise the work.

## ENTOMOLOGY

A 12. **General Entomology.** Undergraduate and graduate; credit three or four hours. Prerequisite, Biology 1 or Zoology 1 or equivalent. Lectures, daily except Sat., 10. *Comstock* 200. Practical exercises, M W F, 1:40-4, and one period by appointment, if taken for four hours credit. *Comstock* 200. Professor MATHESON.

This course includes lectures and demonstrations on the characteristics of the orders and families of insects with the study of their habits, life-histories, and relations to other animals and to plants. The laboratory work consists of the study of the structure, ecology, metamorphosis, and classification of insects. Field trips to study insects in their natural habitats are an important feature. Each student is required to collect and prepare a typical collection of insects. Opportunities are given for the rearing of insects in the Insectary, and special work is offered to suit the needs of individual students. Textbook: *Comstock's Manual for the Study of Insects* (1936 edition). Equipment: a good hand lens, several insect cases, insect pins, and labels. These can all be purchased in Ithaca. Laboratory fee, \$2.50.

A 30. **Elementary Systematic Entomology.** Undergraduate and graduate; credit three hours. Twenty actual hours a week, by appointment. *Comstock* 270. Professors MATHESON and READIO.

This course will consist in the collecting, mounting, and identification of the common insects of the Ithaca region. Special methods of mounting insects for the museum and for teaching will be stressed. Field trips for collecting will be taken regularly and the study of all stages of insects emphasized. Each student will be expected to present a collection of at least 400 insects, properly labeled and identified. Laboratory fee, \$2.50.

A 41. **Elementary Economic Entomology.** Undergraduate and graduate; credit three or four hours. Lectures, daily except Sat., 9. *Comstock* 145. Practical exercises, T Th, 1:40-4 and Sat., 8-10:30, and one period by appointment if taken for four hours credit. *Comstock* 100. Professor READIO.

Includes lectures, conferences, and discussions on the life histories and habits of injurious insects, together with methods of control. The practical exercises include a study of the more important insecticides and of as many of the common pests as time permits. There will be a number of field trips. Laboratory fee, \$2.

## GENETICS

A 101. **General Genetics.** Undergraduate and graduate; credit four hours. Prerequisite, two courses of a biological nature, and permission to register. Courses in cytology and in taxonomic botany or zoology will be found helpful. Lectures, daily except Sat., 8. Laboratory, M W F, 1:40-4. Conferences to be arranged. *Plant Science* 146. Professor FRASER.

An introductory course designed to acquaint the student with the fundamental principles of heredity and variation. Discussions of simpler cases of inheritance, gene interaction, inheritance of sex, sex and gene linkage, quantitative inheritance, the genetics of inbreeding and outbreeding, plasmatic inheritance, and mutation, with suggestions as to the relation of genetical principles to eugenics. Laboratory studies of hybrid material in plants and breeding experiments with the vinegar fly, *Drosophila*. Laboratory fee, \$3.



A 150. **Special Problems in Genetics.** Undergraduate and graduate; credit one or two hours. Work at the convenience of the student. Prerequisite, A 101 or its equivalent, and permission to register. Professor FRASER.

### PLANT PATHOLOGY

A 1. **Diseases of Plants and their Control.** Undergraduate and graduate; credit two to four hours. Prerequisite, permission to register. Lectures, M W F, 8, and other times by arrangement. *Plant Science* 336. Laboratory, the completion of a minimum of four exercises for each credit hour, with personal conferences. Conferences by arrangement. Laboratory at the student's convenience. Associate Professor WELCH and Mr. SPROSTON.

A fundamental course treating of the nature, cause, and control of plant diseases, illustrated by studies of the more common diseases of cultivated crops. The method of conducting the course enables the individual student to study diseases which are of particular interest to him. The work is designed to meet the special needs of teachers of agriculture in secondary schools, teachers of biology, and county agents, as well as undergraduates in Cornell and other colleges. Laboratory fee, \$1.25 a credit hour; breakage deposit, \$5.

### PSYCHOLOGY

S 1. **Introductory Psychology.** Undergraduate; credit two hours. Lectures and recitations. Daily except Sat., 9. *GS C.* Professor DALLENBACH.

This course deals with the basic problems and principles of human psychology and is designed as a general foundation for the study of experimental, social, animal, and child psychology, for psychotechnology, and for the psychology of the abnormal. Class demonstrations will supplement the lectures and demonstrations. Textbook: Boring, Langfeld, and Weld, *Psychology: A Factual Textbook*.

S 6. **Attention.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *Morrill* 306. Professor DALLENBACH.

In this course the application of attention to advertising, to hypnosis, to testimony, to efficiency, and to learning, will receive special emphasis. The application will, however, be made only after the student has been grounded in the elementary facts and laws of attention. The development, the conditions, the kinds, and the levels of attention will first be considered; then the experimental investigations will be reviewed; and thereafter the practical considerations will be taken up.

Demonstrations and class-experiments will be used frequently for illustration. No textbook will be prescribed, but the lectures will be supplemented by assigned readings in standard works.

S 7. **Psychology in Business and Industry.** Undergraduate and graduate; credit two hours. Lectures, readings, and discussions. Daily except Sat., 11. *Morrill* 303. Dr. RYAN.

A study of psychological problems involved in various aspects of business, such as selection of employees, industrial production, personnel, advertising, selling, and market research.

S 9. **The Psychology of Personality.** Undergraduate and graduate; credit two hours. Lectures, readings, and discussions. Daily except Sat., 9. *Morrill* 306. Professor WELD.

A critical study of the term personality, with emphasis laid upon the unstable, the maladjusted, and the introverted.

S 10. **The Psychology of Social Control.** Undergraduate and graduate; credit two hours. Lectures, readings, and discussions. Daily except Sat., 10. *Morrill* 306. Professor WELD.

A study of the social psychology of rules, regulations, and laws; their origin and growth, and their significance for social living. The survey will include public opinion and the law, respect for the law, why we keep the rules and why we break them, authority, reward, and punishment.

### ZOOLOGY

S 1a. **Introductory Zoology.** Undergraduate; credit three hours. Equivalent to Zoology 1, first term. Lectures, daily except Sat., 9. *Stimson* 116. Laboratory, M W, 1:40-4 and an additional period on F of 1st, 3rd and 5th weeks of Session. *Stimson* 116. One field trip to be arranged. Associate Professor YOUNG.

A consideration of the structural and physiological organization of an animal type as viewed from the standpoint of the organism as a biological unit. Also an introduction

to some of the fundamental biological phenomena such as mitosis, gametogenesis, development and inheritance. Students taking this course may elect to go on the field trips offered in connection with Zoology S 1b. Laboratory fee, \$2.50.

**S 1b. Intermediate Zoology.** Undergraduate; credit three hours. Equivalent to Zoology 1, second term. Lectures, daily except Sat., 11. *Stimson* 102. Laboratory, T Th, 1:40-4 and an additional period on F of 2nd, 4th and 6th weeks of Session. *Stimson* 104. Two field trips to be arranged. Professor HESS.

A study of a graded series of animals, stressing the nature of the progressively improved body plans represented in the major divisions of the kingdom. Also considering classification, interrelationships, adaptations, critical epochs in the pathway of descent, and finally the zoology of the human species. Students taking this course are invited to go on the field trip arranged in connection with Zoology S 1a. Laboratory fee, \$2.50.

Courses 1a and 1b may be taken simultaneously for six hours of credit. The field trips of the two courses are planned to give opportunity for the observation of animals in their natural habitats.

**A 8a. Vertebrate Zoology and Ecology: Cold-blooded Vertebrates.** Undergraduate and graduate; credit three hours. Lectures, laboratory, and field work M T W, 1:40-5:00. *Stimson* 225. Some all day trips are required. Professor WRIGHT.

Lectures and laboratories on fishes, amphibians and reptiles; their habits, life histories, coloration, respiration, locomotion, reproduction. Laboratory study of the parts employed in classification, with training in identification of North American species. Field work is partly to give practice in field observations and in ready identification of local vertebrates in their natural environment and partly to introduce some ecological methods. Textbook: Jordan's *Manual of Vertebrates of the Northeastern United States*, new edition. Laboratory fee, \$3.

**A 8b. Vertebrate Zoology and Ecology: Mammals.** Undergraduate and graduate; credit three hours. Lectures, laboratory and field trips, Th F, 1:40-5:00 and Sat., 8:00-11:00. *Stimson* 225. Assistant Professor HAMILTON.

Discussion of principal phases of mammalian life; origin; distribution, habits and literature. Laboratory periods are devoted to life history and economic studies, methods of field collecting, census taking, preparation of skins and skeletons, research methods, and identification of Eastern North American species. Numerous field trips will be taken. Laboratory fee, \$3.

#### HISTOLOGY AND EMBRYOLOGY

The courses in histology and embryology are given in the histological laboratories in *Stimson Hall*. The department is well equipped for instruction in both subjects, having a large and adequate supply of modern microscopical instruments and an extensive collection of demonstration material for both histology and embryology. Microscopes are furnished by the department. Consultation with the instructors previous to registration is advised.

**S 101. Histology.** Undergraduate and graduate; credit four hours. No prerequisite, but previous work in biology, zoology, and botany or physiology is recommended. Lectures, daily except Sat., 12. *Stimson* G1. Laboratory, three hours every morning except Saturday. *Stimson* 206. Assistant Professor SNOOK.

For students in biology or those preparing for medicine. The cell and cellular origin of the body; the structure and development of its component tissues. Each student will prepare or receive a series of typical microscopic preparations. Laboratory fee, \$6.

**S 104. Embryology of Vertebrates.** Undergraduate and graduate; credit four hours. Prerequisite, a course in the histology of the tissues or a satisfactory equivalent in other biological work involving training in the use of the microscope. Lectures, daily except Sat., 9. *Stimson* G1. Laboratory, three hours every morning except Sat. *Stimson* 206. Mr. BATES.

For students of biology or those preparing for medicine. Preparation and study of embryological specimens from all the chief groups of vertebrates. Emphasis is placed on the embryology of the chick. The student also acquires a knowledge of special methods useful in embryological work. Laboratory fee, \$6.

#### ORNITHOLOGY

**A 9. Ornithology.** Undergraduate; credit three hours. Lectures, M W F, 11. *Fernow* 122. Laboratory, M W, 1:40-4:30, or M W F, 9-11. Professor A. A. ALLEN, Assistant Professor KELLOGG, and Dr. E. G. ALLEN.

This course provides an introduction to the study of birds and familiarity with the local species. The lectures cover classification, migration, coloration, song, nest-building, eggs, care of young, methods of attracting birds and their economic importance. The laboratory work with bird skins, nests and eggs gives an intimate knowledge of the birds of eastern North America, their life histories and distribution, and familiarity with the use of manuals. The aim of the field work is the identification of birds by their songs and habits as well as by their plumage. Each student should be provided with field glasses. Laboratory fee, \$3.

**A 126. Advanced Ornithology.** Undergraduate and graduate; credit three hours. Lectures, M W, 9. *Fernow 212.* Laboratory, M W, 1:40-4:30, and one other period by appointment. *Fernow 212.* Professor A. A. ALLEN. Registration limited to 15 students. Prerequisite, Ornithology A 9 or its equivalent. With special permission may be taken with A 9.

The structure and classification of the birds of the world; geographical distribution; the literature and institutions of ornithology. Laboratory fee, \$3.

**A 131. Applied Ornithology.** Undergraduate and graduate; credit three hours. Lectures, T Th, 9. *Fernow 122.* Laboratory, T Th, 10-1, and one other period by appointment. *Fernow 212.* Assistant Professor KELLOGG. Registration limited to 15 students. Prerequisite, A 9 or its equivalent (may be taken at the same time).

This course is intended primarily for students planning to teach biological science or to engage in professional work in ornithology. Field collecting, preparation of specimens, and natural history photography are emphasized together with the food and feeding habits of birds; class room, museum and biological survey methods. Students are expected to provide their own cameras. Laboratory fee, \$3.

**A 136. Seminar in Ornithology.** Without credit. Th, 7:30-9 P.M. *Fernow 207.* Open to undergraduates and required of all graduate students in Ornithology.

#### SPECIAL PROBLEMS AND RESEARCH

**B 99. Special Problems with Animals.** Undergraduate and graduate; credit two or more hours. Hours to be arranged. In registering for this course the name of the professor with whom the work is to be taken must be stated.

Students sufficiently prepared may arrange for the study of some problem or special topic. Such work may lie in the field of general zoology, invertebrate zoology, systematic vertebrate zoology, comparative anatomy of vertebrates, ornithology, histology, embryology, general entomology, systematic entomology, economic entomology, or general biology. A member of the staff must supervise the work.

## GEOGRAPHY, GEOLOGY, AND METEOROLOGY

### GEOGRAPHY AND GEOLOGY

It is the purpose of this department to meet the needs of teachers of geography and general science, and to provide courses of practical and cultural value to college students of geography and geology. The work embraces lectures, laboratory, and field instruction in physical and economic geography, and in the elements of geology. The environs of Cornell University are rich in phenomena of geographic and geologic interest. General field work consequently is especially emphasized at Ithaca, and technical field instruction is provided for men students at a camp in Pennsylvania. Courses S 1, S 5, S 9, S 10, and S 21 successfully completed are an adequate background in geology for entrance to study for the M.S. degree in geology at Cornell.

#### LECTURE COURSES IN GEOGRAPHY AND GEOLOGY

**S 1-S 5. General Geology and Physiography.** Introduction to Earth Science. Given as two correlated courses, as indicated below, either of which may be taken separately for 2 hours credit, but which taken together for 4 hours credit, constitute the lecture and textbook part of Geology A as given in the regular session. S 1 and S 5 together with S 9 and S 10, 6 hours credit, are counted the equivalent of Geology A, the six hour basic course in elementary general geology and physiography.

**S 1. Dynamic Geology and Physiography.** Undergraduate; credit two hours. Daily except Sat., 9. *Geological Lecture Room, McGraw* (first floor, south end). Professor VON ENGELN.

The content of this course includes the topics: history of geological ideas; processes of weathering and their results on landforms; action of streams and valley forms; the morphology of deserts; oceanography; marine erosion; mountain topography; phenomena of glaciers and glaciation; nature of continents and ocean basins; geological climates; orogenies.

The lectures are illustrated by lantern slides, and are correlated with study of a textbook. Students registering in Course S 1 are advised also to take Course S 5 and, for a general course in elementary geology, should further take Courses S 9 and S 10.

**S 5. Petrologic, Structural, and Historic Geology.** Undergraduate; credit two hours. Daily except Sat., 10. *Geological Lecture Room, McGraw* (first floor, south end). Assistant Professor BURFOOT.

Lectures and correlated textbook readings upon the following topics: origin of the earth, materials of the earth's crust and their arrangement, diastrophism, earthquakes, vulcanism, structural phenomena, metamorphism, origin of mountains, ground water, caves, age of the earth and geologic time periods, the fossil record, origin of man.

The lectures are illustrated with lantern slides and specimens. Students registering in this course are urged to take the laboratory course S 9 and the correlated lecture course S 1. These three courses together with S 10 constitute the equivalent of Course A in the regular session.

**S 2. Economic Geography.** Undergraduate and graduate; credit two hours. Daily except Sat., 11. *Geological Lecture Room, McGraw*. Professor VON ENGELN.

The effect of geographic factors on the production and distribution of commodities. Discussion of the origins and regional background of industry and commerce; the volume, extent, and utilization of important products and resources; location and growth of cities. Recommended for teachers who wish broad training in regional geography.

#### LABORATORY AND EXCURSION COURSES IN BOTH GEOGRAPHY AND GEOLOGY

**S 9. Geology Laboratory Course.** Undergraduate; credit one hour. W F, 1:40-4. *General Geological Laboratory, McGraw* (first floor, middle entrance). Assistant Professor BURFOOT and Dr. WELLS.

This course is designed to supplement courses S 1 and S 5. A study will be made of the more common structural phenomena; of the interpretation and uses of topographic and geological maps; of characteristic life forms developed in different geological periods; and of the more common rocks and minerals. Laboratory fee, \$1.

**S 10. Geography and Geology, Field Course.** Undergraduate and graduate; credit one hour. This course should be elected by all those registering in course S 1 or S 5. With courses S 1, S 5 and S 9 a training in elementary geology, and physiography is made available to the student by the inclusion of S 10. Mimeographed outlines of the excursions are to be secured from one of the bookstores by each student desiring credit. See also a pamphlet, obtainable in Ithaca, on *The Geography and Geology of the Cornell Region*. Professor VON ENGELN, Assistant Professor BURFOOT, and Dr. WELLS.

Students desiring credit or certificates of attendance must register in S 10 and will be given preference in accommodations.

Those desiring University or entrance credit must take field notes and hand in written reports. Excursions 1, 2, 3, 4, 5, are required of all students in the course, and in addition for one hour's credit they must take any two of the following four all-day excursions: 6, Watkins Glen; 7, Northern Pennsylvania; 8, Lake Ontario; and 9, Carpenter's Falls.

Meeting place and time announced in mimeographed outlines or by bulletin. Meet for first excursion, Monday, July 14, at *McGraw Hall*, 2 p.m. Excursions 1-5, Monday afternoons; 6, 7, 8, 9, all day. On those excursions to which a cost is attached for bus or railway fares, persons wishing to go must register at the department and secure tickets in advance of the date of the trip. For bus fare on the first excursion, bring 10 cents. The total cost of the trips will be from \$7 to \$10, according to the choices made. Announcements regarding field trips are posted on the middle door of *McGraw Hall* and all arrangements for reservations and tickets are made in the Geology Department Office, middle entrance, *McGraw Hall*. The trips are open to others besides the members of the excursion class as far as accommodations are available. Stops are made at points of interest, explanations given, questions asked, and discussion invited.

## OUTLINE OF EXCURSIONS: COURSE S 10

*Monday Afternoons*

1. **Cascadilla Creek.** Meet at the south entrance to *McGraw Hall* at 2 p.m. Bring registration slips and excursion outline. To study the origin and nature of sedimentary rocks, also processes of erosion, transportation, deposition, and cementation. A study in detail of one of the large gorges and its special features. Opportunity for the collection and identification of a variety of rock kinds is afforded on this trip. Bring ten cents for return bus fare. July 14.

2. **Snyder Hill.** By bus. No tickets; bring 25 cents in change for bus fare. To become acquainted with the lie of the land about Cornell, to learn the place names and nature of the broader physiographic features, studying the maturely dissected plateau and processes of weathering. The top of the hill is a vantage point from which a good view of the lake and the land for miles to the north, east, and west may be had. July 21.

3. **Portland Point.** By bus. Tickets. To study rock structure; intrusion of igneous rocks into sedimentary formations; rock-folding and small-scale faulting and associated phenomena; vein-formation; fossil content of strata; economic utilization for cement. July 28.

4. **Enfield Gorge and Falls.** By bus. Tickets. To study the relations of preglacial and hanging valleys and the postglacial and interglacial gorges, their origin and features. Joint-plane guidance of stream courses. Ride to the head of the gorge, and walk through it to the crest of Lucifer Falls. Swim at the close of the excursion at the lower Enfield pool. August 4.

5. **Terminal Moraine, Kames, Esker, and Outwash Deposits.** By bus. Tickets. Varna, Freeville, and South Cortland. To study a massive morainic loop and the glacio-fluvial deposits which are well developed in this section. August 11.

*All-day Excursions*

6. **Watkins Glen.** By bus. Tickets in advance. Watkins Glen is one of the most beautiful scenic spots in the country. The party will study the gorge, its pot holes, and its falls in detail; and consider its relation to the Seneca Lake valley in comparison with the conditions at Ithaca in relation to the Cayuga valley. Luncheon at the head of the gorge. July 19.

7. **Northern Pennsylvania.** By bus. Tickets in advance. Geology of a coal mine and the physiography of the Susquehanna valley at Wyalusing Rocks. Stops will be made to study Appalachian structure, folds and faults, and the stratigraphy of a complete section from the Portage beds of the Devonian through the Pottsville conglomerate of the Pennsylvanian. An exceptionally fine scenic trip over the Roosevelt Highway through southern New York and northern Pennsylvania. July 26.

8. **Sand Dunes of Lake Ontario.** By bus. Secure tickets in advance. Take lunch. To study glacial drainage phenomena, overflow channels, 'fossil Niagara' at the Clark, Reservation, high level lake deposits, drumlins, and the extensive and characteristic sand dune area at the east end of Lake Ontario. At the lunch hour there will be an opportunity for bathing in Lake Ontario. August 2.

9. **Carpenter's Falls and Fillmore Glen.** By bus. Secure tickets in advance. Take lunch. Have also bag or small basket for specimens. Fossil collecting. Visit a remote, unexploited gorge and waterfall. Demonstration, by means of the Tully l. s., of stratigraphic correlation over a wide area. Visit a small remnant of virgin forest at the head of Skaneateles Lake. At close of trip swimming at Fillmore Glen State Park. August 9.

## FIELD SCHOOL IN GEOLOGY

S 21. **Summer Field School in Geology.** Undergraduate and graduate; credit six hours. Professor NEVIN.

Registration limited to men. For details, write for the special announcement.

## METEOROLOGY

A 1a. **Meteorology.** Undergraduate and graduate; credit two hours. Lectures and discussions. Daily except Sat., 10. *Plant Science* 143. Professor MORDOFF.

This course is adapted to the needs of teachers and students in subjects of which the weather is an important factor, particularly teachers of general science, physical geography, and agriculture. It is designed to acquaint the student with the laws governing the primary and secondary circulation of the atmosphere, and with the development,



progression, and conditions that attend cyclones, tornadoes, and other atmospheric phenomena. Attention is given to the principles and practice of weather forecasting from weather maps and from local observations. Students taking the course at the graduate level will be assigned additional work.

**A 1b. Meteorology, Laboratory Course.** Undergraduate and graduate; credit one hour. Two laboratory periods to be arranged. Must be accompanied by course A 1a. *Plant Science* 114. Professor MORDOFF.

The work consists in the study of the principal weather and climatic elements with the aid of maps, charts, and instruments. The various meteorological instruments will be studied, as well as the methods of taking and recording the observations. Opportunity will be given the student for making practice forecasts. Students taking the course at the graduate level will be assigned additional work.

**[A 2. General Climatology.** Undergraduate and graduate; credit one hour. Should be accompanied or preceded by course A 1a. Professor MORDOFF. Not given in 1941; planned for 1942.]

**A 3. Aeronautical Meteorology.** Undergraduate and graduate; credit one hour. Must be accompanied or preceded by courses A 1a and A 1b, or their equivalents. Lectures and discussions, three periods to be arranged. *Plant Science* 114. Professor MORDOFF.

This is a course planned especially for those interested in aviation. Combined with courses A 1a and A 1b, it will cover all of the work in meteorology as usually given in the ground school course.

**A 6. Special Problems.** Undergraduate and graduate; credit and hours by arrangement. Professor MORDOFF.

Special work in Meteorology and Climatology may be elected by qualified students with the permission of the instructor.

## ASTRONOMY, CHEMISTRY, MATHEMATICS, AND PHYSICS

### ASTRONOMY

**S 1. General Astronomy.** Undergraduate; credit two hours. Daily except Sat., 10. *Rockefeller* 110. Six evening observing periods during the term at the *Observatory*. Professor BOOTHROYD.

An introductory descriptive course illustrated by observations, models and lantern slides.

**S 2. Laboratory Astronomy.** Undergraduate; credit one hour. T Th, 2-4, and one clear T or Th evening in each of the first five weeks. *Observatory* and *Rockefeller* 357. Professor BOOTHROYD.

This course must be preceded or accompanied by course S 1. Observations to acquaint the student with the constellations and the most important facts about planets, sun and stars, together with laboratory exercises dealing with time, seasons, eclipses, meteors, and variable stars.

**S 183. Navigation and Nautical Astronomy.** Undergraduate and graduate; credit three hours. Lectures and recitations, M W F, 9. *Rockefeller* 357. Laboratory, T and Th 2-4. A knowledge of Trigonometry is a prerequisite to this course. *Rockefeller* 357 with six suitably arranged observation periods at the *Observatory*. These periods will be arranged during the first four weeks of the Session and will be used for sextant and compass observations on sun, moon, and stars. This observational data is used for the final class and laboratory exercises as a test of the student's ability to find his position on the earth's surface. Professor BOOTHROYD.

While the fundamental problems of finding the position of a ship at sea and of an airplane over land or sea are essentially the same, the chief emphasis in this course will be to the practical applications in aviation. It is the aim to make this course especially valuable to teachers who expect to teach courses in ground schools for the training of airplane pilots and navigating officers on ships at sea.

S 183 may be taken by Civil Engineering students to satisfy the required work in Course 182, the extra hour credit being counted as a Civil Engineering elective. Such students will make some of the required observations with a surveyor's transit instead of with the sextant and compass.

**S 181. Special Problems.** Undergraduate and graduate; credit and hours by arrangement. Professor BOOTHROYD.

Special work in Astronomy or Astrophysics may be elected by qualified students with the permission of the instructor.

Courses S 1 and S 2 offer an introduction to astronomical ideas and methods and give a good background for teachers who may wish to prepare more thoroughly for teaching general science or geography.

Those who take both courses S 1 and S 2 and those who take courses S 1 and S 183 may count three hours toward fulfilling half of the requirement of Group 4 in the College of Arts and Sciences.

**Lectures and Demonstrations at the Observatory.** A series of lectures will be offered on Monday, Wednesday and Friday evenings when clear. These will be illustrated by actual observations with the great telescope, as well as by other instruments at the Observatory and by diagrams, models, and astronomical photographs. These lectures and demonstrations carry no credit except for those registered in Course S 1.

The first lecture will be on Wednesday and on Friday of the first week and the second, third, fourth, and fifth lectures will be given on Monday, Wednesday, and Friday of those weeks, while the sixth lecture will be given on Monday and Wednesday of the sixth week. The lectures begin at 9 P.M.

Admission to the lectures and demonstrations is by ticket, which may be obtained at the Summer Session office, 245 Goldwin Smith Hall. Summer Session students and faculty and members of their immediate families, may secure tickets without charge. The number of tickets issued for any one evening is limited to 35. Those who come to the Observatory without tickets will be admitted for a fee of 25 cents payable to the attendant at the door. When the weather is doubtful on a given evening, no lecture will be given if the number at the Observatory is less than 10 at 9:15 P.M.

## CHEMISTRY

The courses announced below correspond entirely or in part with courses given during the regular session of the University. For regular students the requirements for admission to the various courses will be the same as during the year.

Teachers may be admitted to any course for which their general training or experience may be considered to prepare them. Efforts will be made to meet the individual needs of teachers by arranging and modifying the work, within reasonable limits, so as to fulfill the particular requirements in each case.

In some laboratory courses a deposit to cover the usual laboratory fee and also breakage and other variable items of expense is charged. At the end of the course the laboratory fee and breakage charge are determined and the unexpended balance is returned to the student. In other courses a laboratory fee of fixed amount is charged. The amount of the deposits and laboratory fees are indicated in the descriptions of courses.

All courses in Chemistry are given in the *Baker Laboratory of Chemistry*.

**S 102. General Chemistry.** Undergraduate; credit six hours. For students who have not had high school chemistry. Lectures, daily except Sat., 8. *Main Lecture Room.* Professor BROWNE and Dr. EATON.

The lectures deal with the fundamental theories and laws of chemistry and with the more common elements and their compounds. They are profusely illustrated by experiments.

Recitations, daily except Sat., 9. *Room 22.* Professor BROWNE.

The recitations deal with the subject matter of the lectures and with the experimental work in the laboratory and afford thorough drill in the solution of chemical problems.

Laboratory, daily except Sat., 10-1. *Rooms 177 and 150.* Professor BROWNE and Dr. EATON.

A series of experiments designed to illustrate the fundamental laws of chemistry and to acquaint the student with the principal elements and their compounds. The equivalent of 102b may be obtained by attending the last three weeks of the Summer Session. Deposit, \$20.

**S 104. General Chemistry.** Undergraduate; credit six hours. For students who have had high school chemistry. Lectures, recitations, and laboratory practice at hours to be arranged. Professor BROWNE and Dr. EATON. Deposit, \$20.

**S 205. Introductory Qualitative Analysis.** Undergraduate; credit three hours. Must be taken with course S 206. Lectures and recitations, daily except Sat., 8, and T Th, 11. *Room 206.* Assistant Professor LONG.

A study of the application of the theories of general chemistry to the systematic separation and detection of the common elements and acid radicals.

**S 206. Introductory Qualitative Analysis.** Undergraduate; credit three hours. Must be taken with course S 205. Laboratory, daily except Sat., 9-1. *Room 252.* Assistant Professor LONG.

A study of the properties and reactions of the common elements and acid radicals; the qualitative analysis of a number of solutions and solid compounds. Deposit, \$25.

**S 210. Introductory Qualitative Analysis.** Shorter course. Lectures and laboratory practice. Undergraduate; credit three hours. Lectures, daily except Sat., 8. *Room 206.* Laboratory, daily except Sat., 9-12. *Room 252.* Assistant Professor LONG.

The properties and reactions of the common elements and acids, and their detection in various liquid and solid mixtures. Deposit, \$20.

**S 225. Introductory Quantitative Analysis.** Shorter course. Lectures and laboratory practice. Undergraduate; credit three hours. Lectures, M W F, 11. *Room 206.* Professor NICHOLS. Laboratory, daily except Sat., 8-11. *Room 252.* Professor NICHOLS.

A study of the fundamental principles of gravimetric and volumetric analysis, and the analysis of various substances by these methods. Deposit, \$20.

**S 230. Advanced Quantitative Analysis.** Recitations and laboratory practice. Undergraduate and graduate; credit three hours. Laboratory, daily except Sat., 8-1. *Room 252.* Professor NICHOLS.

The calibration of weights and volumetric apparatus; the analysis of ferrous and non-ferrous alloys, silicates, and organic substances by various gravimetric, volumetric, and combustion methods. Deposit, \$20.

[S 275. **Quantitative Microanalysis.** Not given in 1941.]

**S 305. Introductory Organic Chemistry.**

A. Undergraduate and graduate; credit three hours. Lectures and written reviews. Daily, 8, throughout the session, and also daily, 9, during the first three weeks. *Room 207.* Dr. BRUCE.

The lectures discuss systematically the more important compounds of carbon, their occurrence, methods of preparation, reactions, and uses. The work covered is equivalent only to the first half of the year-course. Students who wish a complete course must register in Chemistry S 375.

**S 310. Introductory Organic Chemistry.** Undergraduate and graduate.

A. Credit three hours. Laboratory practice and oral reviews. Open to those who have had or who are taking S 305 A. Hours to be arranged in the morning. *Room 250.* Dr. MILLER. Deposit, \$35.

B. Credit three hours. Laboratory practice and oral reviews. Open to those who have had S 305 A and S 310 A. The course is a continuation of Part A. Hours to be arranged in the mornings. Dr. MILLER. Deposit, \$35.

The student prepares a number of typical compounds and familiarizes himself with their properties, reactions, and relations.

**S 320. Advanced Organic Chemistry.** Undergraduate and graduate; credit two or more hours. Laboratory practice at hours to be arranged, in the mornings. Dr. MILLER.

An advanced course in the preparation of organic compounds, involving the use of the more difficult methods and of the less common reagents. Fee variable.

**S 375. Introductory Organic Chemistry.** Undergraduate and graduate; Shorter course. Lectures and written reviews. Credit four hours. Daily, 8-10. *Room 207.* Laboratory practice. Credit one or two hours. Hours to be arranged in the mornings. *Room 250.* Dr. BRUCE, Dr. MILLER. Deposit, \$15-\$20.

A shorter course in organic chemistry, designed for students in pre-medical, biological, agricultural and home economics curriculums.

**S 405. Introductory Physical Chemistry.** Undergraduate and graduate.

A. Credit three hours. Lectures, daily except Sat., 8, and one other lecture, T, 2-3:30. *Room 7.* A knowledge of calculus and elementary organic chemistry is prerequisite to this course, except by special permission. Assistant Professor HOARD.

A systematic presentation of modern chemical theory. The subject matter includes gases, liquids, and solids; the elements of thermochemistry and thermodynamics; the phase rule and the theorem of Le Chatelier; the theory of solution; chemical equilibrium.

B. Credit three hours. Lectures, daily except Sat., 9, and one other lecture, Th, 2-3:30. *Room 7.* A knowledge of calculus and elementary organic chemistry is prerequisite to this course, except by special permission. Assistant Professor HOARD.

A continuation of Part A. The subject matter includes elementary electrochemistry and electrolytic conductance; ionization and ionic equilibria; reaction velocity and catalysis; miscellaneous topics in modern physical chemistry.

**S 410. Physical Chemistry Laboratory.** Undergraduate and graduate.

A. Credit three hours. Laboratory practice, daily except Sat., 8-1. *Room 1.* Assistant Professor HOARD. Open only to those who have taken or are taking course S 405 or its equivalent. With the data obtained in the laboratory as a basis, detailed reports are written covering each of the following topics: molecular weight determination by vapor density; boiling point and freezing point methods; vapor pressure; viscosity; distillation of liquid mixtures. Deposit, \$20.

B. Credit three hours. Laboratory practice, daily except Sat., 8-1. *Room 1.* Assistant Professor HOARD. Open only to those who have taken or are taking course S 405 B or its equivalent. The course is a continuation of Part A. The following topics are considered: dissociation; solubility; reaction velocity and catalysis; indicators; thermochemistry; diffusion; colloids and absorption; phase rule studies. Deposit, \$20.

**S 465. Laboratory Practice in Physical Chemistry.** Undergraduate and graduate; credit one to three hours. Laboratory periods to be arranged. Assistant Professor HOARD. Fee variable.

This course is designed to afford opportunity for special laboratory practice in physical chemistry, colloid chemistry, or electrochemistry.

**S 530. Introductory Chemical Microscopy.** Undergraduate and graduate. Lectures and laboratory practice. Credit three hours. Prerequisite, physical chemistry, or special permission. Lectures, M W F, 10. *Room 377.* Laboratory, M W F, 11-1, T Th, 10-1; additional periods may be arranged. *Room 378.* Professor MASON.

Microscopes and their accessories, as applied to problems in chemistry and technology. Micrometry and particle size determination; quantitative analytical methods; optical properties of crystals and other double refractive materials; physical-chemical studies; illumination, photomicrography, and ultramicroscopy; recognition of textile and paper fibers. Laboratory fee, \$5.

**S 535. Advanced Chemical Microscopy.** Undergraduate and graduate. Laboratory practice. Credit two or three hours. Prerequisite or parallel, course S 530. Laboratory periods and conference hours to be arranged. *Room 378.* Professor MASON.

Practice in the examination and analysis of inorganic substances containing the more common elements, with special reference to rapid qualitative methods and to the analysis of minute amounts of material. Laboratory fee, \$5.

Students not desiring University credit, who wish to secure a working knowledge of Chemical Microscopy in the shortest possible time, may arrange by advance correspondence with the instructor to cover the parts of both of the above courses which best meet their needs.

**S 195, S 295, S 395, S 495, S 595. Research.** Undergraduate and graduate; credit one to six hours. Seniors and graduate students, by special permission, may elect research in the fields of Inorganic, Analytical, Organic, or Physical Chemistry, or Chemical Microscopy, under the direction of the respective members of the staff of instruction. Fee variable.

## MATHEMATICS

Each member of the staff will have a daily office hour for consultation with students. It is urged that this opportunity be utilized by all concerned.

In the following list, courses S 2 to S 5b are equivalent to courses having the same numbers in the Announcement of the College of Arts and Sciences for 1940-41.

Courses S 2, S 3 are equivalent to the advanced entrance requirements of Cornell University and of the College Entrance Examination Board; they presuppose a ready knowledge of elementary and intermediate algebra and of plane geometry. They are also suitable for teachers in the secondary schools who wish to review the subjects.

Students taking S 5a or S 5b are requested to take no other University work during the session without special permission from the Department of Mathematics.

**S 2. College Algebra.** Undergraduate; credit three hours. Daily, 11. *White 101.* Assistant Professor RANDOLPH.

**S 3. Trigonometry.** Undergraduate; credit three hours. Daily, 10. *White 115.* Professor AGNEW.

S 5a. **Analytic Geometry and Calculus.** (First term's work.) Undergraduate; credit five hours. Daily, 8 and 11. *White* 211. Dr. KAC.

S 5b. **Analytic Geometry and Calculus.** (Second term's work.) Undergraduate; credit five hours. Daily, 8 and 11. *White* 203. Associate Professor ROSSER. *White* 221. Dr. HERZOG.

S 20. **Teachers' Course.** Undergraduate and graduate; credit two hours. Daily except Sat., 9. *White* 121. Associate Professor JONES.

This course will treat certain selected topics in the mathematics taught in the secondary schools with a view to contribute to the enrichment of such teaching, and to give a clearer understanding of the meanings of certain of the concepts and processes involved.

S 23. **Modern Algebra.** Undergraduate and graduate; credit three hours. Daily, 12. *White* 111. Professor HURWITZ.

Determinants, matrices, and their relations to linear transformations and quadratic forms.

S 28. **Mathematical Recreations.** Undergraduate and graduate; credit three hours. Daily, 11. *White* 111. Professor HURWITZ.

The course will deal with various games and puzzles which can be treated mathematically; among the topics considered will be the disc-pyramid, Chinese rings, geometric dissection problems, skeletonized arithmetical operations, paths described by uninterrupted drawing, and magic squares. Although only secondary school geometry and algebra are prerequisites, some ability in mathematical reasoning is essential. Permission of the instructor is required.

S 41. **Elementary Differential Equations.** Undergraduate and graduate; credit three hours. Daily, 11. *White* 115. Professor AGNEW.

A study of the processes of deriving differential equations, solving the differential equations, and interpreting the solutions.

S 42. **Advanced Calculus.** Undergraduate and graduate; credit three hours. Daily, 9. *White* 101. Assistant Professor RANDOLPH.

A study of the processes of the calculus; definitions and properties of limits, continuity, derivatives, and integrals.

S 62. **Analytic Projective Geometry.** Undergraduate and graduate; credit three hours. Daily, 10. *White* 121. Associate Professor JONES.

Homogeneous point-coordinates and line-coordinates will be defined for a plane, and projective properties of plane figures will be studied by means of these coordinate systems.

#### READING AND RESEARCH COURSES

In addition to the preceding courses opportunities are offered to graduate students to participate in informal work by reading and research under the direction of members of the Department of Mathematics. A regularly registered student may, by arrangement, obtain academic credit for any of this work; and credit will depend on the amount of work done. Students interested in such directed reading or research may consult any member of the staff.

S 100a. **Topics in Algebra.**

S 100b. **Topics in Analysis.**

S 100c. **Topics in Geometry.**

S 100d. **Topics in Applied Mathematics.**

#### PHYSICS

In addition to the courses in subject matter of Physics listed below a course, S 226d, **The Teaching of Chemistry and Physics in Secondary Schools**, is offered by Professor JOHNSON. The description of this course will be found in the list of courses given by the School of Education.

S 3. **Introductory Experimental Physics: Mechanics, heat and sound.** Of the three parts described below, the student may elect (a), (a, b) or (a, b, c) without consultation; for any other combination he must have the approval of the instructor.

Parts (a, b) together constitute the complete work of Physics 3 of the regular school year. If all three parts are taken, the student should register for course S 11.

(a) Undergraduate; credit two hours. Demonstration lectures and recitations. Daily except Sat., 11. One hour written quiz a week to be arranged. *Rockefeller* A. Professor GRANTHAM.



(b) Undergraduate; credit one hour. Fourteen experiments, each requiring at least one laboratory period. Laboratory open daily except Sat., 1:40-4. *Rockefeller* 252. Assistant Professor TOMBOULIAN. Laboratory fee, \$5.

(c) Undergraduate; credit one hour. Problem work. Sat., 8:30-11. *Rockefeller* 252. Professor GRANTHAM.

**S 4. Introductory Experimental Physics: Electricity and light.** Of the three parts described below, the student may elect (a), (a, b), or (a, b, c) without consultation; for any other combination he must have the approval of the instructor.

Parts (a, b) together constitute the complete work of Physics 4 of the regular school year. If all three parts are taken the student should register for course S 12.

(a) Undergraduate; credit two hours. Demonstration lectures and recitations. Daily except Sat., 9. One hour written quiz a week to be arranged. *Rockefeller* B. Professor GRANTHAM.

(b) Undergraduate; credit one hour. Fourteen experiments, each requiring at least one laboratory period. Laboratory open daily except Sat., 1:40-4. *Rockefeller* 252. Assistant Professor TOMBOULIAN. Laboratory fee, \$5.

(c) Undergraduate; credit one hour. Problem work. Sat., 8:30-11. *Rockefeller* 252. Assistant Professor TOMBOULIAN.

**S 11. Introductory Experimental Physics.** Undergraduate; credit four hours. Parts (a), (b), and (c) of S 3, which constitute the complete work of Physics 11 of the regular school year.

**S 12. Introductory Experimental Physics.** Undergraduate; credit four hours. Parts (a), (b), and (c) of S 4, which constitute the complete work of Physics 12 of the regular school year.

**S 22. General Physics.** Undergraduate; credit three hours. Prerequisites, Physics 11 and 12 and Mathematics 5a and 5b or their equivalents. Daily except Sat., 8. Seven laboratory periods to be arranged. Laboratory fee, \$2.50. Dr. TAPE.

Theory, problems, and laboratory work covering selected topics in thermionics, photoelectric effect, light, and heat.

**S 60. Intermediate Laboratory Physics.** Undergraduate and graduate; credit one to three hours. Prerequisites, an introductory course in college physics and Mathematics S 3 or the equivalent. The laboratory will be open daily except Sat., from 1:40-4. *Rockefeller* 352. Professor COLLINS and Assistant Professor PARRATT. Laboratory fee, \$5 for each laboratory credit hour.

Experiments in mechanics, properties of matter, heat, sound, light and electricity may be performed. The experiments will be chosen to meet the needs and previous experience of the individual student.

**S 81. Recent Developments in Physics.** Undergraduate and graduate; credit two hours. Prerequisite, a second year course in college physics or simultaneous registration in such a course. Daily except Sat., 9. *Rockefeller* 106. Assistant Professor TOMBOULIAN.

An introductory survey of material selected from quantum theory, electron theory of solids and nuclear physics; including such topics as atomic structure, x-rays, optical spectra, thermionic emission, photoelectricity, isotopes, nuclear transformations, and cosmic rays.

**S 106. Advanced Laboratory Practice.** Undergraduate and graduate; credit one to three hours. Prerequisites, Physics S 60, S 61, S 62, and Mathematics S 5, or their equivalents. Assistant Professor PARRATT and Professor COLLINS. Laboratory open daily except Sat., 1:40-4. *Rockefeller* 301. Laboratory fee, \$5 for each laboratory credit hour.

The experiments will be chosen to meet the needs and previous experience of the individual student. Apparatus and equipment are available for work in a wide variety of fields, such as: optics, spectroscopy, x-rays, electrical measurements, electronics, and high temperature measurements. The experiments may be brief so that a wide range of topics will be covered, or a longer time may be spent on each of a relatively few experiments.

**S 125. Electric and Magnetic Fields.** Undergraduate and graduate; credit three hours. Prerequisites, Physics S 60, S 61, and Mathematics S 5 or their equivalents. Daily, 10 and one additional hour to be arranged. *Rockefeller* 107. Professor COLLINS.

Electrostatic, magnetostatic and electromagnetic fields; electromagnetic electromotive force; variable and alternating current phenomena and electric oscillations.

[**S 126. Electrical Conduction and Related Phenomena.** Undergraduate and graduate; credit two hours. Not given in 1941; planned for 1942.]

[S 136. **Optics and Spectroscopy.** Undergraduate and graduate; credit three hours. Not given in 1941; planned for 1942.]

S 315. **Special Topics for Investigation.** Graduate; credit varies with the nature and amount of work done. Students who are prepared to profit by the use of the library and laboratory facilities of the Department in the study of some special topic or in investigation will be given an opportunity to do so. This work may be taken in connection with or independently of any of the above courses and will be under the direction of one or more members of the staff, with whom frequent conferences should be arranged. Students interested are advised to correspond with Professor COLLINS.

S 341. **Theoretical and Experimental Electronics.** Graduate; credit three hours. Prerequisite, S 126 or its equivalent. Two lectures daily for first three weeks at 9 and 11. *Rockefeller* 154. Five laboratory periods per week during last three weeks. Professor SMITH and Assistant Professor PARRATT.

The lectures and laboratory will cover theory and measurements in connection with such topics as: nature of a gas, high vacuum technique, motion of charged particles in simple fields, electron optics, electrons in solids, thermionic and secondary emission, photoelectric effect, collisions of electrons with atoms, and electrical discharge. Applications of these phenomena to modern electronic devices such as: the cathode ray tube, electron microscope, kinescope, iconoscope, orthicon, etc. will be pointed out.

Students may take additional or more advanced laboratory work if they desire.

## ENGINEERING

The courses in engineering described below are equal in character to corresponding courses given in the COLLEGE OF ENGINEERING during the regular session. They will be accepted for credit towards graduation by the several schools of the college so far as they apply to the prescribed work of the school concerned. Students in the College of Engineering who may desire to offer work done in the Summer Session toward graduation should consult the Director of the School in which they are regularly registered before registering in the Summer Session. Others may obtain information concerning these courses by applying to the Secretary of the College of Engineering.

### ADMINISTRATIVE ENGINEERING

S 3A23. **Business and Industrial Management.** Undergraduate and graduate; credit two or three hours. Daily except Sat., 12. One afternoon to be arranged for those desiring three hours credit. *West Sibley* 2. Professor BANGS and Assistant Professor HANSELMAN.

A survey of the problems of business and industrial management designed for administrative engineering students, although of considerable importance and open to any one interested in the problems of modern business. This rapidly growing field is concerned with business policies, types of business ownership, and includes the major functions of marketing, production, finance, and accounting. Major consideration is also given to the selection of personnel and to study of modern advertising.

One of the features of the course is the designing of an advertising portfolio and a critical study of the relationship of advertising to the modern organization.

S 3A31. **First Course in Accounting.** Undergraduate; credit three hours. Daily except Sat., 11. Two practice periods per week to be arranged. *West Sibley* 2. Professor BANGS and Assistant Professor HANSELMAN.

Theory of debit and credit; the journal and ledger; the preparation of balance sheets and income statements; special journals; balance sheet analysis; financial mathematics—the use of compound interest tables; bond valuation; sinking funds, depreciation; business papers and procedures.

### ELECTRICAL ENGINEERING

S 405a. **Fundamentals of Electrical Engineering.** Undergraduate; credit three or four hours. Lectures, daily except Sat., 8; computations, M W F, 10-1. Prerequisites, Physics 11 and 12, and Mechanics 3M21, or the equivalent. *Franklin* 215. Assistant Professor STRONG, Mr. JONES.

D.C. electric and magnetic circuits; d.c. motors, generators and control equipment; distribution and rates; simple a.c. circuits.

Equivalent to the recitation work in E.E. 405. Students who have satisfactorily completed only the laboratory work of E.E. 405 may register for four hours credit and receive credit equivalent to E.E. 405 upon completion of S 405a.

S 406a. **Fundamentals of Electrical Engineering.** Undergraduate; credit three or four

hours. Lectures, daily except Sat., 8; computations, M W F, 10-1. Prerequisites, E.E. 405 or the equivalent. *Franklin* 115. Assistant Professor STRONG.

A.C. circuits, measurements, and machinery; industrial applications; electronic apparatus. A study of fundamental electrical principles and machinery and the application of electrical equipment in industry.

Students who have satisfactorily completed only the laboratory work of E.E. 406 may register for four hours credit and receive credit equivalent to E.E. 406 upon completion of S 406a.

**S 410. Elements of Electrical Engineering.** Undergraduate; credit four hours. Lectures, daily except Sat., 9; computations, M W F, 10-1. Prerequisite courses, Physics 11, 12, 21, Mathematics 5a and 5b. *Franklin* 115. Assistant Professor STRONG, Mr. JONES.

An introductory study of electrical phenomena and their application to engineering. Aims to provide a solid foundation for further study in electrical engineering.

Equivalent to E.E. 410.

**S 415, 416. Principles of Electrical Engineering.** Undergraduate; credit three hours. Students deficient in E.E. 415 or E.E. 416 should consult the professor in charge of the course, as arrangements may be made to take parts of S 405a and S 406a which constitute the equivalent of E.E. 415 or E.E. 416.

**S 435. Electrical Laboratory.** Undergraduate; credit two hours. Laboratory periods, M W F, 1:40-4. Prerequisite courses, Mechanics 3M21, and E.E. 415, 416 or the equivalent. *Rand Hall*. Mr. WOOD.

A short course in electrical laboratory. Laboratory technique and instrumentation. Tests on rotating machinery, transformers, and other apparatus. Equivalent to E.E. 435.

**S 436. Electrical Laboratory.** Undergraduate; credit two hours. Laboratory periods, M W F, 1:40-4. Prerequisite course, E.E. 435. *Rand Hall*. Mr. WOOD.

A continuation of S 435. Equivalent to E.E. 436.

**S 4C51. Electronics.** Undergraduate and graduate; credit three hours. Prerequisite, at least one year of college physics including electricity. Lectures, daily except Sat., 11. *Franklin* 115. Two laboratory periods per week. Professor BALLARD.

A study of the fundamental principles and practical operation of various types of electronic apparatus, including high vacuum electron tubes, gas and vapor filled tubes. photosensitive tubes and similar apparatus in appropriate electrical circuits.

Special emphasis will be placed upon the problems of theoretical and experimental nature involved in the teaching of electronics in colleges and secondary schools.

## ENGINEERING DRAWING

**S 120. Drawing and Descriptive Geometry.** Undergraduate; credit three hours. Recitations, M W F, 12. Drawing, M W, 1:40-4, and three other periods as arranged. *East Sibley*. Assistant Professor CLEARY.

Equivalent to M.E. and E.E. 120.

Coordinated instruction in subjects prerequisite to a study of the engineering applications of drawing. The fundamental drafting arts. Geometric analysis and composition of structures including considerations of: the elements of structure and their properties, interspace relations of structural elements and determinants of elements. Graphic computation and description of the geometric qualities and quantities of structure.

**S 121. Mechanical Drafting.** Undergraduate; credit three hours. Prerequisite, 120 or 125a. Recitations, M W F, 10. Drawing, T Th, 1:40-4 and three other periods as arranged. *East Sibley*. Assistant Professor CLEARY.

Equivalent to M.E. and E.E. 121.

Basic studies of the functional and structural divisions of machines, structural standards and shop methods of producing structural qualities and quantities are coordinated in this course with instruction and drill in the fundamental techniques of determining machine structure by layouts and specifying structural information on working drawings in a manner consistent with both the convenience of the shop and the need of restricting the accumulation of production errors. Freehand sketching, pictorial drawing, tracing, etc. are studied and applied in this work.

**S 125. Drawing.** Undergraduate; credit three hours. Recitations, T Th S, 10. Drawing, W, 1:40-4 and four other periods as arranged. *East Sibley*. Assistant Professor CLEARY.

A brief course in the basic subjects of drawing and the techniques of applying these subjects to the determination of structure by layouts and the specification of structure on working drawings.

**S 125b. Drawing.** Undergraduate; credit two hours. Prerequisite, 125a. Recitations,

M W F, 10. Drawing, T Th, 1:40-4 and one other period as arranged. *East Sibley*. Assistant Professor CLEARY.

Equivalent to Chem. Eng. 125b. Planning and execution of layouts and working drawings.

### EXPERIMENTAL MECHANICAL ENGINEERING

**S 3X21. Materials of Engineering.** Undergraduate and graduate; credit three hours. Lectures daily except Sat., 12; and W, 1:40-4. *East Sibley* 110. Prerequisite, General Chemistry 102, or the equivalent. Professor DAVIS and Assistant Professor JEFFREY.

An elementary lecture course in metallurgy, covering the process metallurgy of iron and steel, including iron ore and pig iron; the production of wrought iron, steel, and cast irons, and mechanical working operations. Particular emphasis is placed on the constitution and structure of metals and alloys, including the development and use of cooling curves and equilibrium diagrams; stressing the relationship between the nature, form, size and distribution of constituents to the mechanical and physical properties of materials. Heat treatment operations are studied with reference to their effects on the constitution and the mechanical properties of alloys. An introduction is given to methods of testing for the determination of the properties of materials.

**S 3X31, S 3X33. Materials Testing and Physical Metallurgy.** Undergraduate and graduate; credit four hours. Prerequisites, Engineering Materials 3X21, Theoretical and Applied Mechanics 3M21, Strength of Materials 3M22a, or the equivalent. Courses S 3X21 and S 3X31 may be taken concurrently. Two lectures and two laboratory periods a week as assigned, M and Th, 10-12, and daily 1:40-4. *Mechanical Laboratory*. Professor DAVIS and Assistant Professors JEFFREY and MOYNIHAN.

A laboratory course dealing with: the determination of physical properties of materials (principally metals and alloys) by means of various physical tests; a study of the behavior of materials in different kinds of loading; the selection of materials for a given use based upon the physical properties; the control of physical properties of ferrous and non-ferrous alloys by various forms of thermal and mechanical treatments, with emphasis on the relationship between the phase changes, the microstructure and physical properties. A written report is required on each experiment.

**S 3X101 Materials and Processes of Industry.** Undergraduate and graduate; credit four hours. Admission only with the permission of the instructor. Prerequisites, 9 hours of college mathematics, including trigonometry, and 12 hours of science, including physics and chemistry, except that a deficiency of not more than three hours may be taken concurrently with Course S 3X101. Lectures, M and Th, 8-10 and two laboratory periods a week as assigned on T and F, 8-10, or 10-12. *Mechanical Laboratory*. Professor DAVIS and Assistant Professors JEFFREY and MOYNIHAN.

It is the primary purpose of this course to meet the needs of teachers of Industrial Arts and of Technical and Vocational Education. The course includes: the testing of materials, principally metals and alloys; the use of testing machines and other instruments for the determination of the physical properties of materials; a study of the internal structure of materials by microscopic examination; the control of properties by various mechanical and thermal processes; the industrial fabrication and processing of materials; the selection of materials with particular reference to their use in industry. The course work will be supplemented by visits to nearby industrial plants.

### MECHANICS OF ENGINEERING

The following courses in Mechanics of Engineering are open to students from other universities, subject to the same requirements for admission as are made for Cornell students.

**S 3M22a. Strength of Materials.** Undergraduate; credit three hours. Prerequisite, Theoretical and Applied Mechanics, 3M21, or equivalent. Daily, 8, Sat., 10, and one computing period, Fri., 10 to 12:20 or 1:40 to 4. *West Sibley* 310. Professor CORNELL, Assistant Professor BARTON and Mr. GOLAND.

Stress, strain; strength and elastic properties of materials in tension, compression, and shearing; riveted joints; torsion of shafts; helical springs; shear; moment, safe loading, and deflection of simple beams; eccentric loads; columns; impact loads.

**S 3M23. Hydraulics.** Undergraduate; credit two hours. Prerequisite, Theoretical and Applied Mechanics, 3M21, or equivalent. Daily except Sat., 10. *West Sibley* 312. Professor CORNELL and Mr. GOLAND.

Hydrostatics: pressures and centers of pressure. Hydrokinetics: general equations of energies; orifices, weirs, nozzles, Venturi meters, etc.; losses of head; flow in pipe. Hydro-dynamics: forces on stationary and moving bodies.



**S 3M24. Applied Mathematics.** Undergraduate; credit three hours. Prerequisite, Theoretical and Applied Mechanics, 3M21, and Strength of Materials, 3M22a, or equivalent, but may be taken concurrently with S 3M22a. Daily, 9, Sat., 11, and one computing period, Fri., 10 to 12:20 or 1:40 to 4. *West Sibley 312.* Mr. GOLAND.

Curve plotting, choice of coordinates and scale, straight line plotting of simple equations; logarithmic plotting; fitting empirical equations to experimental data; first and second order differential equations; vibration problems in engineering; linear, torsional, and flexural vibrations without and with damping; forced vibrations; critical speeds.

## STRUCTURAL ENGINEERING

**S 221. Mechanics of Engineering.** Undergraduate; credit four hours. Daily except Sat., 8 and 11. *Lincoln 24.* Assistant Professor HOWELL.

Mechanics of materials including stress and strain, tension, shear, compression, torsion, flexure; elastic curves; safe loads; columns; flexure of beams by semigraphic treatment. Review problems showing application of principles in Engineering Design. Textbook: George and Rettger, *Mechanics of Materials* (Third Impression).

**S 221A. Mechanics Laboratory.** Undergraduate; credit one hour. Fifteen periods, at hours to be arranged. *Mechanics Laboratory, Lincoln.* Assistant Professor HOWELL.

Concurrent with S 221. Experiments designed to illustrate the principles of Mechanics studied in S 221.

**S 223. Engineering Problems.** Undergraduate; credit two hours. Thirty periods, at hours to be arranged. Assistant Professor HOWELL.

Problems in Mechanics and Hydraulics, such as occur in ordinary engineering practice, and covering a wide range of topics, are given out for solution.

**S 270. Structural Analysis and Design.** Undergraduate; credit four hours. Prerequisite, C.E. 220, 221. Lectures and recitations, daily except Sat., 8; computations and drawings at hours to be assigned. *Lincoln 14 and 29.* Assistant Professor BURROWS.

One-fourth of the course includes structural details, i.e., the design of a wooden roof truss and other timber joints. The remainder of the course includes dead load, live load, and impact stresses in simple bridge trusses due to uniform live panel loads, locomotive axle loads, and highway loads. Text: Urquhart and O'Rourke, *Stresses in Simple Structures*.

**S 271. Structural Design.** Undergraduate; credit three hours. Prerequisite, C.E. 270. Lectures, computations, and drawing. Daily, 9-11. *Lincoln 14.* Assistant Professor BURROWS.

An elementary course in steel design. Complete design, detail drawing, bill of material, and estimate of weight of a steel roof truss, a thorough plate girder railroad bridge. Floor systems of highway bridges. Text: Urquhart and O'Rourke, *Design of Steel Structures*.

**S 274. Bridge Design.** Undergraduate and graduate; credit three hours. Prerequisite, C.E. 271. Computation and drawing, daily, 11-12:50. *Lincoln 14.* Assistant Professor BURROWS.

Computations and drawing for the complete design of a riveted railroad or highway bridge. The computations to determine the sections of all members, joints, splices, and other details are to be written up in systematically arranged reports. The drawing consists of general plans showing the location of all rivets as well as the composition and relation of all members and connections. The final reports are to give a full list of shapes and plates, and a classified analysis of weight for the span.

**S 280. Concrete Construction.** Undergraduate; credit three hours. Prerequisite, C.E. 220, 221. Daily, 9-10:30. *Lincoln 21.* Professor URQUHART.

Concrete materials, properties of plain concrete, its making and deposition; elementary theory of reinforced concrete as applied to columns, rectangular beams, and slabs; T-beams reinforced for compression; direct stress combined with flexure; retaining walls. Text: Urquhart and O'Rourke, *Design of Concrete Structures*.

**S 281. Foundations.** Undergraduate and graduate; credit three hours. Daily, 8. *Lincoln 21.* Professor URQUHART. Prerequisite, a fundamental course in Mechanics.

Piles and pile driving, including timber, concrete, tubular and sheet piles; cofferdams; box and open caissons; pneumatic caissons for bridges and buildings, caisson sinking, and physiological effects of compressed air; pier foundations in open wells; freezing process; hydraulic caissons; ordinary bridge piers; cylinders and pivot-piers; bridge abutments; spread footings for building foundations; underpinning buildings; sub-



terranean explorations; unit loads. Textbook: Jacoby and Davis' *Foundations of Bridges and Buildings*. Recitations, collateral reading in engineering periodicals, and illustrated reports.

§ 285. **Reinforced Concrete Design.** Undergraduate and graduate; credit three hours. Prerequisite, C.E. 280. Daily except Sat., 11-12:30. *Lincoln 21*. Professor URQUHART.

Design of multiple column footings of reinforced concrete. I-beam grillages. Design of bins and tanks: subsurface and supported on towers. Shortspan bridges. Reports and sketches.

## AGRICULTURE

In addition to the following technical courses, the NEW YORK STATE COLLEGE OF AGRICULTURE also offers courses in Rural Sociology, Rural Education, Meteorology, and the various Biological Sciences. For these courses, see the appropriate division, or consult the Index at the end of this Announcement.

### AGRICULTURAL ECONOMICS AND FARM MANAGEMENT

A 81. **Economics of Enterprise.** Undergraduate and graduate; credit two hours. Daily except Sat., 10. *Warren 225*. Professor KENDRICK.

Intended for mature students in any field who desire an acquaintance with the fundamentals of economic theory.

A 115. **Prices.** Undergraduate and graduate; credit three hours. Lectures, daily except Sat., 9. *Warren 125*. Laboratory, M, 1:40-4. *Warren 25*. Professor PEARSON.

A study of price movements and factors affecting them. Emphasis is placed upon agricultural prices and their relation to other prices. Attention is given to index numbers, seasonal variations, cycles, secular trends, the history of prices, physical volume of production, and the relation of gold to prices. Fee for materials, \$2.

A 138. **Taxation.** Undergraduate and graduate; credit two hours. Lectures, daily except Sat., 9. *Warren 225*. Professor KENDRICK.

A study of the principles and practices of public finance with emphasis on taxation. Among the topics examined are: the growth of public expenditures; the changing pattern of federal, state and local taxation; general property; personal income, inheritance, business and sales taxation; the incidence of taxation; and relations among taxing units. Fee for materials, \$2.

A 141. **Marketing.** Undergraduate and graduate; credit three hours. Lectures, daily except Sat., 11. *Warren 125*. Laboratory and discussion, W., 1:40-4. *Warren 101*. Assistant Professor HEDLUND.

A course dealing with problems of distribution of farm products. A study of demand, supply, costs, and other factors to consider in deciding when, where, in what form, and through what channels to sell; public regulations and controls. Fee for materials, \$2.

A 202. **Farm Management.** Undergraduate and graduate; credit three hours. Lectures, daily except Sat., 8. *Warren 101*. Laboratory, T, 1:40-4, Sat., 8-12:30. *Warren 101*. Field trips will be taken to farms in nearby regions during some of the laboratory periods. Associate Professor CUNNINGHAM.

A special course intended primarily for high school teachers, county agricultural agents and others who have had previous training in farm management and now wish a review of the field, together with instruction in selection and preparation of farm management and agricultural economic material for teaching purposes. Emphasis will be placed on farming as a business, factors affecting farm incomes, use of capital and credit, the organization and management of specific farm businesses, and the keeping and interpretation of farm records and accounts. Fee for materials, \$2; for transportation, \$4.

### AGRICULTURAL ENGINEERING

A 31. **Farm Structures.** Undergraduate and graduate; credit three hours. Lectures daily except Sat., 8. Computing and consultation periods M W, 1:40-4, and special problems. *Dairy 119*. Professor GOODMAN.

A study of the plan and construction of buildings suitable for various types of farming with emphasis on remodeling, insulation and ventilation. Materials fee, \$1.

A 40c. **Advanced General Farm Shop.** Undergraduate; credit three hours for three special units of two weeks each. Units may be taken separately for one hour of credit each. Lectures, W F, 9. Laboratory, daily except Sat., 10-12, and special problems. *Agricultural Engineering Laboratory*. Assistant Professor WRIGHT.

These courses are designed primarily for teachers of agriculture who are giving the work as part of the shop courses in high schools or who are conducting extension work. The preparation of job sheets will be a part of the instruction.

**Unit 1. July 7-18. Home and Farm Water Supply and Supply Plumbing.**

A study of: (1) sources of water supply; (2) selection of kind and sizes of piping; (3) various types of domestic water systems; (4) fittings and fixtures. Practice to give familiarity with plumbing operations. Laboratory fee, \$1.

**Unit 2. July 21-August 1. Sewage Disposal and Waste Plumbing.**

A study of: (1) the principles of rural sanitation; (2) cesspools and septic tanks; (3) plumbing for transporting wastes. Laboratory fee, \$1.

**Unit 3. August 4-15. Automobiles and their Engines.**

A study of: (1) the principles of operation, care and repair of automobile engines; (2) the general structure and principles of operation of the various automobile units, including modern features; (3) the servicing of cars, such as lubrication, battery care, tires, etc. Laboratory fee, \$1.

**A 41. General Shop Work for Rural High-School Teachers.** Undergraduate; credit three hours. T Th, 1:40-4:45, Sat., 8-12 and three recitation periods to be arranged. *Agricultural Engineering Laboratory.* Professor ROEHL.

Practical jobs to develop skill in woodworking, saw filing, tool grinding, handle fitting, harness repairing, rope work, cold metal working, farm blacksmithing, painting and glazing, furniture repairing, and refinishing, as suited to the needs of rural communities.

A course for teachers of agriculture and general shop work in rural high schools. Designed to develop skill in performance. Laboratory fee, \$3.

**A 43. Field Machinery Repair.** Undergraduate; credit three hours for three special units of two weeks each. Units may be taken separately for one hour of credit each. Lectures W F, 11. *Dairy 119.* Laboratory, M W F, 1:40-5 and special problems. *Agricultural Engineering Laboratory.* Professor JENNINGS.

This course is intended to prepare men to teach the repairing of farm machinery as part of the shop work in Vocational Agriculture.

**Unit 1. July 7-18.** A study of the care, repair, and operation of plows, cultivators, and other tillage machinery, with the emphasis on practical repair and maintenance. Laboratory fee, \$1.

**Unit 2. July 21-August 1.** A study of the care, repair, and operation of mowers, binders, and other harvesting machinery with the emphasis on practical care and maintenance. Laboratory fee, \$1.

**Unit 3. August 4-15.** A study of the care, repair, and operation of planters, drills, and other seeding machinery, with the emphasis on practical repair and maintenance. Laboratory fee, \$1.

**A 49. Welding.** Undergraduate and graduate; credit one hour. Prerequisite, permission to register. Practice by appointment. *Agricultural Engineering Laboratories.* Professor JENNINGS and Mr. CLOUGH.

Training in oxy-acetylene welding and in electric welding with both alternating and direct current machines. Laboratory fee, \$5.

**A 101a. Electricity and Its Application to the Home and Farm.** Undergraduate; credit three hours for three special units of two weeks each. Units may be taken separately for one hour of credit, provided the first unit precedes the second and the first two precede the third. Lectures, T Th, 9. Laboratory, M W F, 1:40-4:45 with one extra hour each week and special problems. *Agricultural Engineering Laboratory.* Assistant Professor WRIGHT.

**Unit 1. July 7-18.** A study of elementary electricity, dry cell and storage batteries, elementary wiring, lighting and power circuits, switching circuits, burglar alarms, wiring materials, wiring code rules. Laboratory fee, \$1.

**Unit 2. July 21-August 1.** A study of house wiring, including the actual wiring of a small building, heating appliances, motor appliances, illumination and illuminating equipment including portable lamps, and power distribution systems. Laboratory fee, \$2.

**Unit 3. August 4-15.** Electric motors and generators. A study of types of motors and generators commonly used on the farm and in the home together with their various applications. Opportunity will be given to build small motors and generators as a means of learning the principles of operation. Considerable time will be given to such matters as the selection, installation, and servicing of these machines. Laboratory fee, \$1.

**A 240. The School Shop: its Organization, Management and Teaching Problems.** Undergraduate and graduate; credit three or four hours. Must be preceded by adequate training in shop. For teachers of agriculture and other rural teachers who give shop

primarily as a service subject. Daily except Sat., 8, and M W, 9. *Agricultural Engineering Laboratory*. Professor ROEHL and Assistant Professor OLNEY.

Advanced problems in objectives, curriculum organization and procedures in shop instruction: individual plans for integration into the school program will be required. Plans, tools, supplies, commercial and home made equipment; shop management.

A 251. **Special Problems in Agricultural Engineering.** Undergraduate and graduate; credit one or more hours. Prerequisite, adequate ability and training for the work proposed, and permission to register. Professors and assistant professors of the department.

Special work in any branch of agricultural engineering on problems under investigation by the department and of special interest to the student; provided, in the latter case, that adequate facilities can be obtained. Laboratory fee as arranged.

## FLORICULTURE AND ORNAMENTAL HORTICULTURE

A 1. **General Floriculture and Ornamental Horticulture.** Undergraduate; credit two hours. Lectures, M W F, 10. *Plant Science* 37. Laboratories, M W, 1:40-4:30. *Plant Science* 15. Dr. ALLEN.

A practical elementary course on the culture and use of ornamental plants designed to meet the needs of elementary school teachers and amateur gardeners. Specific subjects considered are propagation, garden planning and maintenance, flower arrangement, flower judging, house plant culture, care of trees and shrubs, lawns, and hedges, and soil management. Some attention is also given to the identification and use of common ornamental plants such as roses, annuals, perennials, rock garden plants, trees, and shrubs. May be supplemented with course A 4 to cover elementary landscape design and planting. Laboratory fee, \$3.

A 4. **Planning and Planting the Home Grounds.** Undergraduate; credit two hours. Lectures, T, 9, W, 8, Th, 10. *Plant Science* 37. Laboratories, T 10-12:50, Th 11-12:50. *Plant Science* 433. Acting Professor PORTER and Mr. REICH.

A brief course covering the fundamental principles of landscape planning and planting as related to smaller residence properties. Open for general election. Students will need a set of drawing instruments. Members of the class participate in an excursion on August 1 and 2 to visit private estates and public parks in Rochester. Transportation charge \$4. Laboratory fee, \$3.

A 12. **Herbaceous Plant Materials.** Undergraduate and graduate; credit two hours. Lectures, M T Th, 8. *Plant Science* 37. Laboratory, T Th, 1:40-4:30. *Plant Science* 15 and *Gardens*. Dr. ALLEN.

A study of the ornamental herbaceous plants used in landscape and garden plantings. Emphasis is placed on the identification, uses and culture of annuals and summer flowering perennials. Problems in garden maintenance are considered. Members of the class will participate in an excursion on August 1 and 2 to visit private estates and public parks in Rochester. Laboratory fee, \$4; transportation fee, \$3.

A 13. **Woody Plant Materials for Landscape Planting.** Undergraduate and graduate; credit two or three hours, by arrangement. Lectures, M W Th, 9. Laboratory and field trips, M W, 10-12:30, 1:40-4:30. *Plant Science* 29 and *Campus*. Professor CURTIS.

A study of the characteristics and requirements of trees, shrubs, and vines for landscape planting. The laboratories and field trips enable the student to recognize common woody plants. The lectures discuss plant materials, in order that the student may learn to see plants not only as growing things but as possible units in designs with which he may be able to improve his surroundings. All members of the class will participate in an excursion on August 1 and 2 to visit private estates and public parks in Rochester. Laboratory fee, \$3. Transportation fee, \$4.

A 118. **Landscape Construction.** Undergraduate and graduate; credit two or four hours by arrangement. Prerequisite, permission to register. Lectures, W, 7-9:30 P.M. *Plant Science* 37. Laboratories, T Th, 1:40-6; F, 8-12, 1-6; S, 8-1. *Practice fields*. Acting Professor PORTER.

A course covering the construction problems of the service departments of nursery landscape firms, landscape contractors, greenkeepers, and park superintendents. Studies, estimates, and the practice of grading, earthwork, walls, terraces, steps, pools and the like. Several trips to visit work under construction will be required. Laboratory fee, \$8.

A 129. **Propagation and Management of Ornamental Plants.** Undergraduate and graduate; credit three hours. Prerequisite adequate training in Botany and permission to register. Lectures, M T Th, 8; M, 10. *Plant Science* 22. Laboratories, M, 11-12:50, M W, 1:40-5. *Plant Science* 22 and *Nurseries*. Dr. PRIDHAM.

A study of the principles and practices employed in the propagation, transplanting and maintenance of woody plants including fertilizing, pruning and a discussion of special plants for special places. Laboratory fee, \$3. Transportation fee, \$4.

A 162. **Special Problems.** Undergraduate and graduate; credit and hours by arrangement. Members of the staff.

Special problems in plant materials, nursery and landscape work may be elected by qualified students with the permission of the instructors. Laboratory fee dependent upon the nature of the problem.

**Courses A 118 and A 129** are offered to practicing nurserymen, park and estate superintendents, landscape engineers and architects, and to advanced students in horticulture and landscape gardening. These courses taken together constitute a full summer program. Either course may be taken separately or may be combined with other courses offered in the Summer Session.

### EXTENSION SERVICE

The following special courses for agricultural agents, home demonstration agents, and club agents will be given during the first three weeks of the Summer Session, beginning on July 7 and ending on July 25. All persons actively engaged in extension work in Agriculture and Home Economics are eligible for admission to these courses, but a formal application for admission is necessary. The courses will not be open to regular Summer Session students.

- X 1. Objectives and Program of Extension Work.
  - X 2. Rural Community Organization.
  - X 3. Land Use and Agricultural Planning.
  - X 4. Problems of Farm Families Related to Extension Programs.
  - X 5. Psychology for Extension Workers.
  - X 6. Meaning and Problems of Democracy.
- Afternoon Round Tables.

A special Announcement of this Extension Service Summer School will be sent upon request addressed to the Director of the Summer Session, Cornell University, Ithaca, N. Y. This will give full details, including descriptions of courses, a list of the faculty, and other pertinent information. Application for admission to these courses may be made on the blank given on the last pages of this Announcement, or on a special form mailed with the special Announcement.

### HOME ECONOMICS

The courses in the Summer Session of the New York State College of Home Economics are planned primarily to meet the needs of teachers, extension workers, social service workers, and others who deal with homemaking practices and problems. Courses aim to strengthen the home economics background of these groups, to discuss problems pertinent to the situations in which they work, and to help them meet these problems more adequately.

Since Summer Session students in the field of Home Economics constitute a mature group, largely made up of professional persons, the approach in courses, even those of an introductory nature, is quite different from that in courses of similar title offered during the regular college year. Hence most of the courses are marked "graduate". Undergraduates are occasionally admitted but only by permission of the instructor; such permission should be secured by correspondence with the instructor in advance of registration.

Students registered in the Graduate School must notify the instructor at the beginning of Summer Session whether they wish credit toward a degree.

This summer four "unit" courses are being offered, three for the first three weeks of the Summer Session and one for the first two weeks. These are arranged particularly for those needing intensive work in a brief period of time and will deal with subject-matter important in some phases of the national defense program. The three courses in Foods and Nutrition (courses E 100, E 105, and E 130) will carry undergraduate credit of two hours each. The fourth, in Institution Management, (course E 22) will carry no credit. Attention is called to the full description of these courses in the separate departments.



Courses were renumbered for the Summer Session Announcement last year (1940). Numbers in parenthesis refer to those used in previous Summer Session Announcements and will help to identify the courses with those previously offered.

All courses in Home Economics are given in *Martha Van Rensselaer Hall*.

#### ECONOMICS OF THE HOUSEHOLD AND HOUSEHOLD MANAGEMENT

**E 310 (E 112). Management in Relation to Family Living.** Graduate; credit three hours. Registration by permission of the instructor. Discussions, laboratory, and field trips. M W, 2-5; F, 2. *Room G 19.* Assistant Professor WIESENDANGER and Miss FREEMAN.

For students who wish help in understanding the process of management and opportunity for study and practice of this process. Experience in recognizing and analyzing the students' own management problems. Meetings in homes, schools, and community centers to see how certain families and groups of people manage differently to achieve their individual purposes. Cooperation with families and other groups in the study of tasks. Development of trial work centers set up with portable equipment to help in determining the most satisfactory way of performing these tasks in each individual case. Opportunity for students to develop their own ideas and to use initiative in working out procedures and materials helpful in meeting their vocational problems in management. Fee, \$10, including transportation.

**E 330 (E 145). Management in Relation to Personal and Family Finances.** Graduate; credit two hours. Daily except Sat., 12. *Room 121.* Miss BARBER.

The relation between financial management and other management problems; outside economic conditions as they bear on the management of family finances; factors influencing real income; efforts that individuals can make toward attaining financial security; important considerations in a savings program and in an investment program; policies in borrowing, sources of credit, availability and charges of lending agencies; financial records and statements helpful in managing. *Teachers or others who may wish to work on material and plans to be used in teaching financial management are advised to register for additional credit in course E 300.* Fee, \$2.50.

**E 300 (E 150). Special Problems.** Graduate; credit and hours to be arranged individually. For students qualified to do independent, advanced work on a problem not dealt with by other courses in the department. Miss BARBER. Fee determined by the problem.

#### FAMILY LIFE

**E 318 (E 118). Family Relationships and Personality Development.** Graduate; credit two hours. Daily except Sat., 9. Discussion groups of 8-10 persons meet once each week for an hour-and-a-half period. *Room 121.* Professor ROCKWOOD.

A course aiming to help the student understand the family as the medium through which the culture is interpreted to the child. Consideration is given to the process of personality development and to the dynamics of interaction of family members at different stages of the family cycle. Fee, \$2.50.

**E 319 (E 117 s). Family Experience and Individual Adjustment.** Graduate; credit two hours. Daily except Sat., 9 or 11. *Room 124.* Associate Professor ENTORF.

A course dealing with the influence of family experience on the growth of personality and with the variety of ways in which individuals adjust to typical life situations. Fee, \$1.

**E 330 (E 220). Participation in the Nursery School.** Graduate; credit two or three hours. Limited to 12 students. Open to home economics teachers, and other students with qualifications satisfactory to the instructor. Prerequisite, child psychology. Prerequisite or parallel, elementary course in Guidance. For each hour of credit there will be required a total of thirty hours of supervised participation in the nursery school and several conferences each week with the teaching staff. Laboratory hours to be arranged. Conference, daily except Sat., 12. *Room 124.* Assistant Professor REEVES.

Observation and study of young children in their homes and in the nursery school group. Participation in their care and guidance. Some experience is offered in planning a child-activity program, and in cooperating with staff and parents concerned. Laboratory fee, \$5.

**E 410 (E 101). Principles of Child Guidance.** Graduate; credit two hours. Prerequisite or parallel, Psychology of Childhood and Adolescence. Discussions, daily except Sat., 8. *Room 124.* Nursery School observations, three hours a week, arranged



with the instructor during registration. Professor WARING and Assistant Professor REEVES.

The behavior of young children and the influence of adults upon their learnings will be observed and studied as a basis for developing principles of guidance. Observation will be scheduled at different hours of the day to include typical activities. Laboratory fee, \$5.

E 430 (E 215). **Research in Family Life.** Graduate; credit one or two hours. Registration by permission of the instructor. Hours by arrangement. Professor WARING and Professor ROCKWOOD.

### FOODS AND NUTRITION

Courses E 100, E 105, E 130 will emphasize low cost foods (including surplus commodities) in relation to demands of the defense program.

E 100 (E 200). **Meal Planning, Preparation and Service.** Undergraduate; credit two hours. To be offered the first three weeks of the Summer Session. Prerequisite, elementary courses in food preparation and nutrition. Limited to 16 students. Lectures and discussion, daily except Sat., 10. Room 339. Laboratory daily except Sat., 11-1:30. Room 361. Assistant Professor FENTON.

Consideration of the problems involved in the purchase of food, and in the planning, preparation and serving of meals. Emphasis will be placed on organization and management of time, money, and energy. Trips to nearby pottery and silver factories. Approximate cost of trips, \$2. Laboratory fee, \$15.

E 105 (E 305). **Food Demonstrations.** Undergraduate; credit two hours. To be offered the first three weeks of the Summer Session. Registration by permission of the instructor. Limited to 12 students. Lectures and discussion, T Th, 8. Room 343. Laboratory, daily except Sat., 9-12. Room 358. Mrs. JANSSEN.

A course emphasizing the purposes and technics of demonstrations in food preparation and nutrition, as used in teaching, extension, business and social service. Fee, \$10.

E 130. **Elementary Nutrition and Dietetics.** Undergraduate; credit two hours. To be offered the first three weeks of the Summer Session. Daily except Sat., 2-4. Room 426. Assistant Professor BRUCHER.

The significance of food selection in achieving and maintaining health. Special emphasis on the nutritional needs of normal adults and how to provide good nutrition with diets at different levels of cost. Fee, \$1.

E 310 (E 102). **Food Preparation and the Science Underlying It.** General course. Graduate and undergraduate; credit two hours, or three hours by arrangement. Lectures and discussions, M W F, 8. Room 343. Laboratory or demonstrations, T Th, 8-10:30. (An additional lecture and laboratory arranged for those registered for three hours credit.) *For students who wish to register for course E 325 arrangement will be made for use of laboratory 7:30-10. Rooms 353 and 356.* Professor PFUND.

A study of the scientific principles necessary to the understanding of modern theory and practice in the field of food preparation, and the application of these principles to the analysis and interpretation of cookery practices. Fee, \$10 for 2 hours credit; \$15 for three hours credit.

E 325 (E 123). **Advanced Nutrition.** Graduate and undergraduate; credit two hours. Registration by permission of instructor. Lectures and discussions, daily except Sat., 10. Room 426. Professor HAUCK.

Emphasis on the experimental data on which the principles of human nutrition are based, and a critical review of current literature in this field. Fee, \$1.

### HOUSEHOLD ART

E 135 (E 107). **Home Projects in Room Improvement.** Graduate; credit two or three hours. Lectures, discussions, and laboratory, M W, or T Th, 2-5. Additional laboratory to be arranged for those registered for three hours credit. Room 318. Professor ROMAN and Miss MYREN.

Planning for simple room-furnishing in which the cooperation of all family members may be enlisted. Practice will include remodeling of old furniture and construction of some new, simple pieces. Materials used will be those commonly found in rural and village homes. It will be helpful if those intending to take the course will write to the instructor for suggestions about materials that might be brought from home.

Students will be given help in improving their home surroundings at small cost, whether they live in a house, small apartment, or rented room. Teachers will be helped

to accumulate illustrative materials for their own work. Estimated cost of materials and trips, \$7.50. Fee, \$2.50 a credit hour.

### INSTITUTION MANAGEMENT

**E 22. Quantity Food Preparation.** A two weeks' unit running from July 7 through July 19. No credit. Class limited to fourteen students. Prerequisites: a high school diploma, or permission of the instructor, and some experience in quantity food preparation. Discussion periods and laboratories, daily, 8-1 and alternate afternoons, 2-5:30. Room G 62. Mrs. LEAHY.

Laboratory practice in the Home Economics cafeteria kitchen preparing foods for service in the Cafeteria. Some consideration will be given to the determination of quality standards and costing of recipes. Fee, \$8.

*Other unit courses of interest may be found in the offerings of the School of Hotel Administration.*

**E 230. Selection and Preparation of Food in Quantity.** Graduate and undergraduate; credit three hours. Registration by permission of the instructor. Class limited to fourteen students. Discussion periods and laboratories, M W F, 8-1, T Th, 2-5:30. Room G 62. Miss ROBERTS and Mrs. LEAHY.

For homemaking teachers who have responsibility for the school lunch and for others, working in the field of food administration, who have had a good background in elementary food preparation. Laboratory practice in the Home Economics cafeteria kitchen preparing foods in quantity for service in the Cafeteria. Some consideration will be given to purchasing food supplies, determination of quality standards and costing of recipes. Fee, \$10.

**E 250. School Lunch Problems.** Graduate and undergraduate; credit two hours. Limited to twenty students. Lectures and discussions, M W F, 2-4. Room 121. Miss ROBERTS.

A course planned for teachers who have not had courses in Institution Management, but who have responsibility for the school lunch. Problems of the group are discussed, including organization and management procedures, selection of furnishings and equipment, and purchasing of food supplies. Fee, \$1.

**E 300. Special Problems.** Graduate; credit one or two hours. Credit and hours arranged individually. Registration by permission of the instructor. For students qualified to do independent, advanced work on a problem not dealt with by other courses in the department. Fee determined by the problem.

### TEXTILES AND CLOTHING

**E 205. Clothing of the Family.** Graduate or undergraduate; credit two hours. Registration by permission of instructor. Primarily for students interested in family life, teachers and social workers. Laboratory and field practice, M W, 2-5. Room 217. Assistant Professor SCOTT.

A course to help students gain practical experience in meeting clothing problems as they occur in families, with special emphasis on the clothing needs of growing children. Visiting homes to study clothing problems. Practice in selection and construction, make-over and repair, care and refurbishing. Fee, \$5.

**E 212 (E 116). Craftsmanship and Design in Decorative Details of Clothes.** Credit two hours. Registration by permission of the instructor. Limited to twenty students. Lecture and laboratory, M W F, 10-1. Room 216. Assistant Professor FULLER.

A course offering opportunity for creative experience through the study of ornamental and structural design in dress and accessories. The importance of details will be emphasized. Historic forms of ornament such as appliqué and embroidery adapted to the current fashion; structural design involving unusual use of cutting and construction methods to create decorative interest. Details will be partly or entirely developed in cloth. Estimated cost of materials, \$10 to \$15. Fee, \$5.

**E 215. Fitting, Pattern Making and Clothing Construction.** Graduate; credit two hours. Prerequisite, fundamental courses in clothing selection and construction. Laboratory, T Th, 2-5. Room 217. Assistant Professor SCOTT.

Concentrated work in fitting, based on the use of the commercial pattern. The principles of fitting as related to pattern making and pattern adjustment. Pattern alterations and adaptation to individual figures. In construction, the emphasis will be placed on techniques used in the development of professional skill and on management and organization of work. Estimated cost of materials, \$10 to \$25. Fee, \$5.

**E 310 (E 150). Household Textiles.** Graduate; credit two hours. Prerequisite, elementary course in textiles or the equivalent in some specific textile situation. Registration by permission of instructor. Discussions and laboratory, M W F, 8-10. Room 278. Professor BLACKMORE.

A study of the wide range in quality in household textiles and the methods of selecting the quality best suited to specific needs. Buying problems in the area of household textiles.

Technical information necessary for efficient buying. Physical testing of fibers and fabrics for properties which affect satisfactory use. Procedure and performance of standard and other physical tests will be evaluated. Specifications set up by various groups. Existing state and federal laws governing the sale of certain household textiles. Application of the course material to specific professional situations.

If the class can arrange the time, a one or two-day trip will be planned to several manufacturing establishments to observe designing, weaving, making of certain household fabrics, and methods used in preparing fabrics for the retail market. Cost of trip approximately \$7, if personal car is used. Approximate cost of materials, \$2. Fee, \$5.

**E 320 (E 160). Consumer Problems in Buying Clothing.** Graduate; credit two hours. Limited to twenty students. Lectures, discussions and laboratory, M W, 2-4; field trips, F. 2-5. Room 215. Assistant Professor FULLER.

A course dealing with variations in the needs and desires of different individuals as a basis for purchase and use of clothing. Buying practices of consumers; relationship of design, fashion and construction to quality and cost of merchandise; government and industrial regulations, standards and specifications; services by retail stores, such as testing bureaus, consultant bureaus, and training of salespeople; sources of information available to consumers.

Trips to factories and stores in Ithaca and nearby towns will be planned. Estimated cost of materials and trips, \$10. Fee, \$5.

### EDUCATIONAL LEADERSHIP IN HOMEMAKING AND FAMILY LIFE

The following course is arranged particularly for home economics teachers, extension workers, and all those interested in leadership in informal homemaking education. The attention of students is also called to related courses in Education, Sociology, Extension Teaching, Economics of the Household E 310, and Household Art E 135.

**E 310. Program Planning and Methods.** (See also Rural Education 134b: Adult Homemaking Education.) Graduate; credit three hours. Registration by permission of the instructor. Discussion, M W F, 10-12. Room 121. Acting Professor POLLARD.

Individual and group conferences concerning students' own problems in Adult Homemaking Education. Observation and participation in adult classes near Ithaca and conferences with professional leaders. Evaluation of existing programs and teaching procedures in relation to purposes. Discussion of principles of learning, factors and procedures in program building, the development of lay leaders, and cooperation among agencies.

Students will find it helpful to bring with them information about the problems and educational needs of families in their localities, descriptions of some adult programs there, and notes on ways communities may contribute to the national defense program.

Estimated expenses for field trips, \$5-\$8. Fee, \$3.

### HOTEL ADMINISTRATION

In 1922 Cornell University established, with the cooperation and financial assistance of the American Hotel Association, a four-year course in Hotel Administration for high-school graduates desiring to enter the administrative departments of the hotel business. Many hotel proprietors and managers, who have been unable to take a four-year university course, have asked for shorter courses with less formal entrance requirements.

To meet this demand, all Summer Session work in Hotel Administration is given in unit courses, either one or two weeks in length. A circular giving full details of these courses will be issued about April 15. For this circular, for other information about the work in this department, and for admission to these courses, address Professor H. B. MEEK, Martha Van Rensselaer Hall, Cornell University, Ithaca, N. Y.

The first unit courses in this department begin on June 23. All courses are offered at the undergraduate level. Since these courses are planned chiefly as refresher courses and are not designed to integrate with any program looking toward a degree, academic credit

is not ordinarily granted for them. Students who have met the regular admission requirements may, however, receive credit towards the bachelor's degree if they indicate at the time of registration their intention to work for such credit and secure approval thereof.

#### REQUIREMENTS FOR ADMISSION

Anyone employed in hotel work is eligible for admission. Prospective students will be required to present evidence of good character, of sincerity of purpose, and of interest in hotel work. It is distinctly to the advantage of prospective students to file applications early, in any event not later than June 15.

#### COURSES OF INSTRUCTION

H 11. **Hotel Operation.** Credit one hour. H 12. **Institution Organization and Administrative Problems.** Credit two hours. H 14. **Fraternity House Management.** Credit one hour. H 15. **Hotel Promotion.** Credit one hour. H 18. **Personnel Methods.** Credit one hour. H 22. **Food Preparation.** Credit two hours. H 24. **Institution Menu Planning.** Credit one hour. H 31. **Elementary Accounting.** Credit three hours. H 32. **Hotel Accounting.** Credit three hours.

H 33. **Interpretation of Financial Statements.** Credit one hour. H 36. **Food and Beverage Control.** Credit one hour. H 39. **Problems in Hotel Accounting.** Credit one, two, or three hours. H 41. **Hotel Engineering.** Credit two hours. H 71. **Hotel House-keeping.** Credit one hour. H 73. **Institution Textiles.** Credit one hour. H 81. **Hospital Operation.** Credit two hours. H 91. **Real Estate Management.** Credit one hour. H 153. **Problems in Hotel Administration.** Credit one, two, or three hours.

## SCHEDULE OF EXAMINATIONS

Thursday, August 14 and Friday, August 15, 1941

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With a few exceptions, examinations will be held as scheduled below. In most of the exceptional cases, the examinations will be given on Wednesday at 2.

The usual class rooms will be used for examinations in most cases; change of rooms will be announced by the instructors.

Conflicts in examinations should be reported to the instructors in charge of the two conflicting courses.

In courses which meet for more than one hour daily, the examination period is determined by the first hour at which they meet. Examples: German S 1, meets daily at 8 and 12; examination, Thursday at 8. Botany S 1a, meets daily at 10-12:30; examination, Thursday at 10:30.

In a single course in which both laboratory and lecture work is included, the examination is scheduled in the lecture period.

In courses in which no examination is to be given, an announcement to that effect will be made by the instructor.

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8 o'clock classes, Thursday at 8.

9 o'clock classes, Friday at 8.

10 o'clock classes, Thursday at 10:30.

11 o'clock classes, Friday at 10:30.

12 o'clock classes, Thursday at 2.

Afternoon classes which meet Monday, Wednesday, or Friday, Wednesday at 2.

Afternoon classes which meet Tuesday and Thursday, Friday at 2.

Afternoon classes which meet every afternoon, Friday at 2.



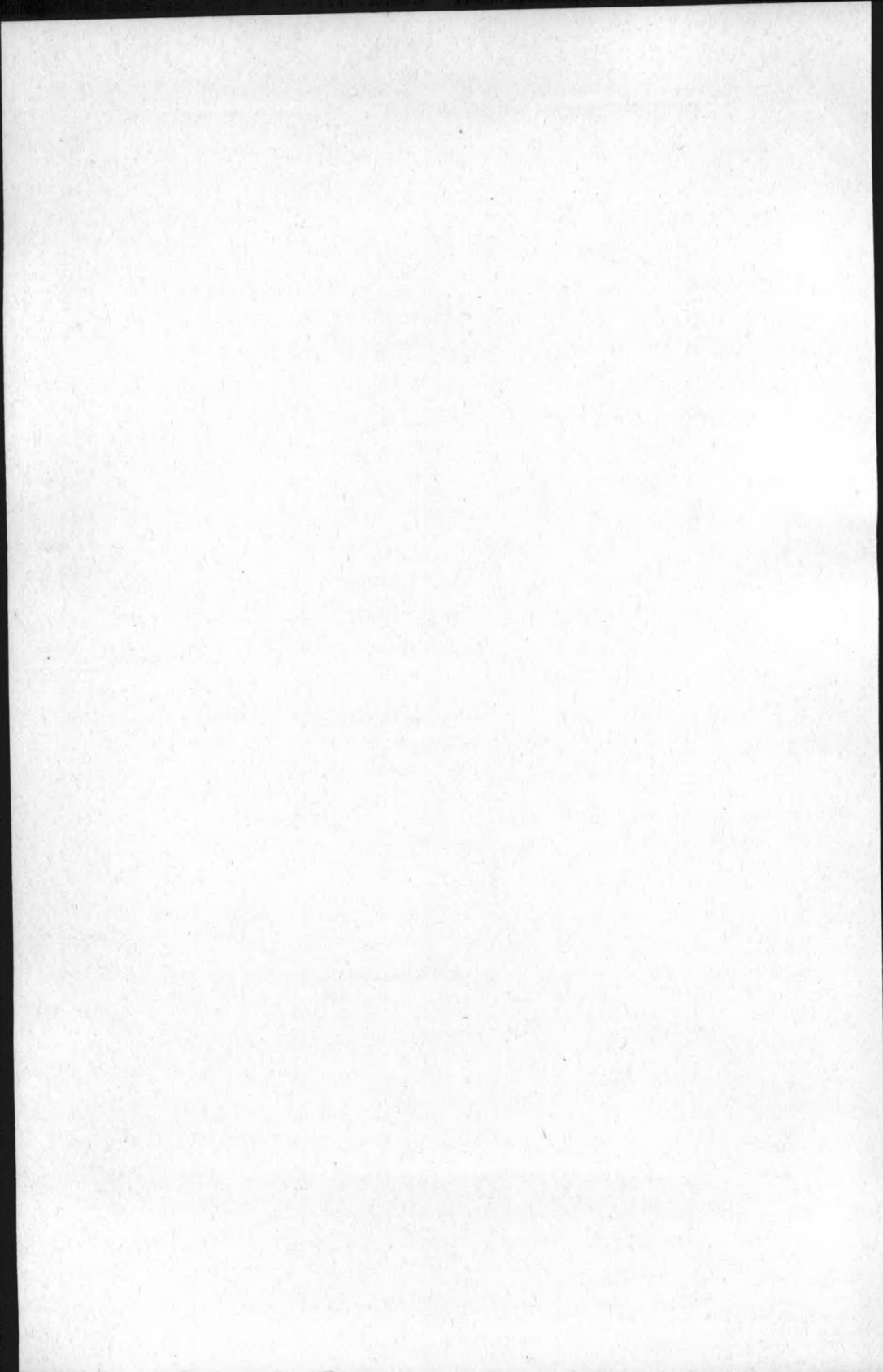
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Because the edition of this Announcement is limited, persons planning to register in the Summer Session are asked to bring their copies with them.



# CORNELL UNIVERSITY SUMMER SESSION, 1941

## Application for Admission

Name .....  
                     *Family name*                      *Full first name*                      *Middle name*

Address .....  
                     *Street and number*                      *City or town*                      *State*

### A. School, College and Graduate Training:

Please check items to indicate your training, and fill out blanks next following the items checked.

.....Now in High School

.....  
                     *City or town*                      *State*                      *To graduate (year)*

.....High School Graduate

.....  
                     *City or town*                      *State*                      *Year of graduation*

.....Now in College or Normal School

.....  
                     *Institution*                      *Location*                      *To graduate (year)*

*Applicants now in college or normal school should ask the registrar of that institution to send an official transcript of record to the Director of the Summer Session.*

.....College or Normal School Graduate

.....  
                     *Institution*                      *Location*                      *Degree*                      *Year*

.....Now in Graduate School

.....  
                     *Institution*                      *Location*                      *Degree expected*                      *Year*

.....Holder of Advanced Degree

.....  
                     *Institution*                      *Location*                      *Degree or degrees, year granted*

If you have attended a school of a sort not listed above (a technical institute, for example), give pertinent information here.



## B. School Position:

If you hold a position of any kind in a school, college, or other educational institution, please check items to indicate your position and fill out blanks next following the items checked.

.....Substitute or Temporary Teacher

<i>School</i>	<i>Location</i>	<i>Position and subject or grade</i>
.....Teacher		

<i>School</i>	<i>Location</i>	<i>Position and subject or grade</i>
.....Supervisor, Principal, Superintendent, etc.		

<i>School</i>	<i>Location</i>	<i>Position</i>
.....Assistant or Instructor in Normal School or College		

<i>Institution</i>	<i>Location</i>	<i>Position and subject</i>
.....Assistant Professor, Professor, etc.		

<i>Institution</i>	<i>Location</i>	<i>Position and subject</i>
.....Other School Positions		

## C. Other Professional, Scientific or Business Position:

If you hold a professional, scientific or business position and your proposed attendance at the Cornell Summer Session is connected with this position, please give details below. (Examples: librarian in public library; research chemist; landscape architect; county agricultural agent; hotel room clerk).

## D. Previous Attendance at Cornell University:

.....Please check here if you have previously attended Cornell University, either in the regular term or in a Summer Session.

## E. Reason for Proposed Attendance at Cornell Summer Session:

In not more than two or three sentences state your purpose in attending the Cornell Summer Session.

Mail this application to the Director of the Summer Session, Cornell University, Ithaca, N. Y.